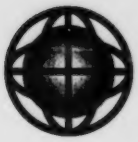

MINERALS AND METALS SECTOR

SECTEUR DES MINÉRAUX ET DES MÉTAUX

CANADA'S MINING INDUSTRY:

A Global Perspective

APRIL 1996

Natural Resources Canada | Ressources naturelles Canada

Canada

FOREWORD

This report is the published version of remarks made by Dr. Keith J. Brewer and Dr. Dale L. Hull, of the Minerals and Metals Sector of the Department of Natural Resources, Ottawa, Canada, in various European and Asian centres:

Dr. Keith J. Brewer	· London, England, March 18, 1996
	· Paris, France, March 20, 1996
	· Bonn, Germany, March 21, 1996
Dr. Dale L. Hull	· Tokyo, Japan, January 23, 1996
	· Taipei, Taiwan, January 26, 1996
	· Kuala Lumpur, Malaysia, March 25, 1996
	· Singapore, Singapore, March 28, 1996

The presentations, which varied in length and content, generally reviewed recent economic, fiscal, and financial developments that affect the international competitiveness of Canada's minerals and metals industry, discussed Canada's varied geology and investment climate, and highlighted a number of promising Canadian mineral projects.

POINTS OF CONTACT

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A list of key Canadian mining-related addresses may be found in Appendix A.

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INTRODUCTION

- Good morning Ladies & Gentlemen. It is a pleasure to be here to talk about Canada's minerals industry.

- The presentation commences with the general macroeconomic direction in Canada, and a discussion of the latest trends in production, exploration and investment levels, and new mine openings in Canada's minerals and metals industry.

- My remarks on the global outlook for minerals and metals reflect our analysis of world production and consumption.

- That will set the stage for snapshots of "cost leagues" that compare the cost position of Canada's mineral producers vis-à-vis the rest of the world. We compare 1995 with projections for the year 2000.

- A fair amount of detail is shown on the financial performance of Canadian mineral producers.

- A section reviews recent developments on Canada's regulatory front and we revisit taxation, including federal and provincial changes.

- The presentation concludes with remarks about two far-reaching events in Canadian mining: the development of diamonds and the Voisey's Bay discovery.

- When one speaks of investment in Canadian mining companies, it is well to remember that we are not talking just about mineral projects in Canada, but also about Canadian mining companies which have very large interests in other countries. An investment in these companies gives you exposure to Canada and to a large part of the rest of the world.

- In bringing together the material for these presentations, we try to be as up-to-date as possible. Hence, the written version of my remarks will only be assembled and available as a written report in the next few weeks. There are two ways to obtain a copy:

  1) give me your business card; or
  2) take my business card and contact me.

A: CANADA'S INTERNATIONAL COMPETITIVENESS

PART I: DIRECTION OF THE CANADIAN ECONOMY

Canada - Growth in Real GDP, 1990-95

- Based on gross domestic product (GDP) figures, the Canadian economy has recovered from the recession of the early 1990s.
- In 1994, the GDP grew by 4.6%, the highest rate among the G-7 countries. Growth slowed in the first half of 1995, largely due to a weakening in exports, following the slowing of the U.S. economy, and higher interest rates emanating largely from the United States.
- This temporary pause has ensured that the resumption of growth will not place upward pressure on inflation.
- Canada's economic growth is expected to strengthen as U.S. growth resumes now that concerns of rising inflation in the United States are behind us.
- The Conference Board of Canada believes that the Canadian economy will grow at a modest rate of 1.9% in 1996 and 2.6% in 1997.

Canada's Federal Deficit as a Percent of GDP

- The recent economic growth in Canada has helped federal, provincial, and territorial governments to improve their financial situation.
- In fiscal year 1995-96, seven of Canada's twelve provincial/territorial jurisdictions were expected to post a balanced budget or a surplus.
- At the federal level, the deficit will fall to the federal government's interim target of 3% of GDP by 1996-97. Furthermore, the Government is aiming to reduce the deficit to 2% of GDP by 1997-98.

Total Government Budget Deficit as a Percent of GDP, 1989-96

- Deficit reduction programs are expected to be particularly successful for governments as a whole in Canada over the next few years.
- Canada's total government deficit ratio is expected to decline 5 percentage points to 2.3% of GDP by 1996 from those high levels of 1992 and 1993.
- Canada should be below the G-7 average this year.

General Government Program Spending as a Percent of GDP, 1989-96

- The decline in total government program spending will be quite significant in Canada in the next few years.

- In 1992, total government program spending reached 42% of GDP and by 1996 it should decrease to just over 36% of GDP.

Canada's Consumer Price Index, 1990-98

- Canada's monetary policy has been geared towards keeping inflation under control - within a target range of 1% to 3%.

- Canada's record of low inflation, currently at around 1.4%, has been achieved despite a fall in the dollar, a rise in commodity prices, and a restoration of healthy profit margins. The lagged effect of these factors pushed inflation up slightly at the beginning of 1995, but only temporarily.

- Continued wage restraint has led to significant moderation in the growth of unit labour costs and inflation. Unit labour costs fell over much of 1993 and 1994, and currently remain below their 1992 level.

- The Conference Board of Canada recently projected that Canada's consumer price index (CPI) would increase by only 1.4% in 1996 and 1.8% in 1997, making it one of the lowest among the G-7 countries.

- Canada's impressive inflation record, and its commitment to maintaining low inflation levels, should lead to lower bond rates and a stronger Canadian dollar.

- According to the Conference Board of Canada, the Canadian dollar (in U.S. dollar terms) will average 74 cents in 1996 and 74.5 cents in 1997. The Canadian dollar is projected to reach 80 cents U.S. by the turn of the century.

Interest Rates (90-Day Treasury Bill) Canada and the United States, 1981-95

- There is a current debate about the likely course of interest rates in Canada over the next year.

- One view is that continued upward pressure on interest rates will come from the United States. A rebound in the United States would generate renewed inflation, putting upward pressure on both U.S. and Canadian interest rates.

- The other view is that consumer debt is high in Canada, which has weakened aggregate demand. Monetary authorities would eventually have to ease up, leading to a fall in Canadian interest rates. This would bring about a decline in the Canadian dollar, especially if U.S. interest rates do not fall.

- We have always felt that there is a possibility that interest rates would rise cyclically this year.

- Before introducing the next slide, note in this slide how, from 1988 to 1993, Canadian interest rates were up to 4 percentage points higher than those in the United States.

Canada-U.S. Dollar Exchange Rate and Purchasing Power Parity

- With that large interest rate differential, it is not surprising that the value of the Canadian dollar was high relative to the U.S. dollar in those years.

- The Canadian dollar has fallen by 15% vis-à-vis the U.S. dollar since 1991. It is now significantly undervalued. [It is estimated that goods and services purchased in Canada cost, on average, about 9% less than in the United States.]

- This situation is represented by the gap between the actual exchange rate and the estimated exchange rate that would make goods and services purchased in Canada cost the same as those purchased in the United States (the purchasing power parity rate).

- There is a general view that Canada's commitment to low inflation levels supports lower interest rates and a stronger Canadian dollar in the future.

Canada's Merchandise Trade Balance, 1990-95

- Canada's increased competitiveness, and the success of recent trade initiatives which include the signing of the Canada-U.S. Free Trade Agreement, the North American Free Trade Agreement (NAFTA), and the Uruguay Round of multilateral trade negotiations, have resulted in strong gains in trade.

- Merchandise exports grew at an annual average rate of 16% from 1991 to 1995. Over the same period, imports grew by an average of 13% per year.

- Canada's merchandise trade surplus reached a record $28.3 billion in 1995, nearly double the 1994 level and the fourth consecutive year of increasing surpluses. About one-third of this surplus is accounted for by non-petroleum minerals and mineral products.

Trends in Productivity - Mineral Industry and Total Economy, 1980-95

- Productivity has improved in the mineral industry in recent years. Since 1982, the mineral industry has recorded greater gains in productivity than the Canadian economy as a whole.

- This has happened not only from reductions in employment, but also from extensive improvements in mining methods and mining technologies. Companies have been forced to deal with two severe economic recessions at a time when international competition was becoming more rigorous.

Direct Investment Flows, 1984-94

- What has all of this meant for investment in Canada? Well, in terms of just direct investment flows, Canada's inflows and outflows are about the same - around $6 billion per year.

- [This is **not** stocks and **not** bonds but "gross fixed capital formation," which basically consists of capital construction, and machinery and equipment.]

Foreign Direct Investment Position in Canada, 1994

- This slide shows the distribution of accumulated foreign direct investment in Canada - 27% from Europe, but two thirds from the United States.

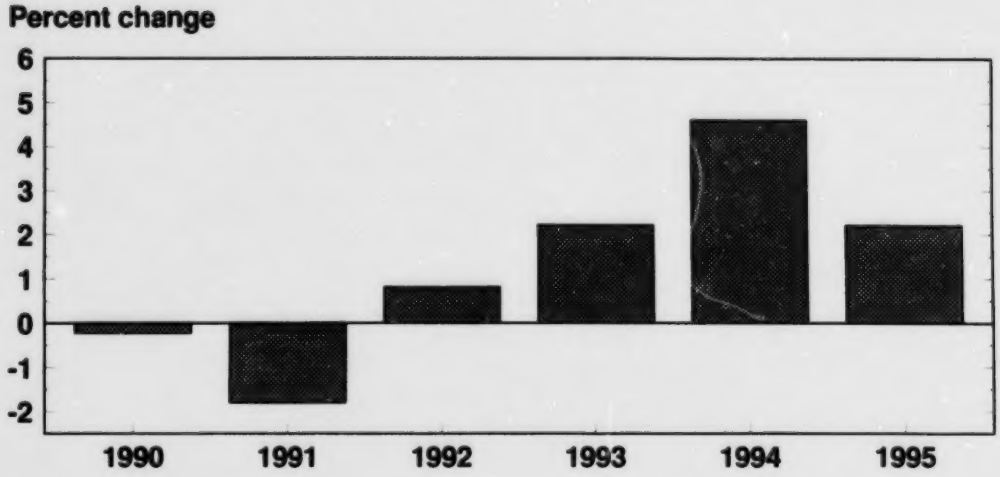
Canada's Direct Investment Position Abroad, 1994

- This slide shows Canada's accumulated investment pattern abroad.

- Approximately 25% of Canada's foreign investment is in Europe, and just over half is in the United States. South and Central America account for about 3%.

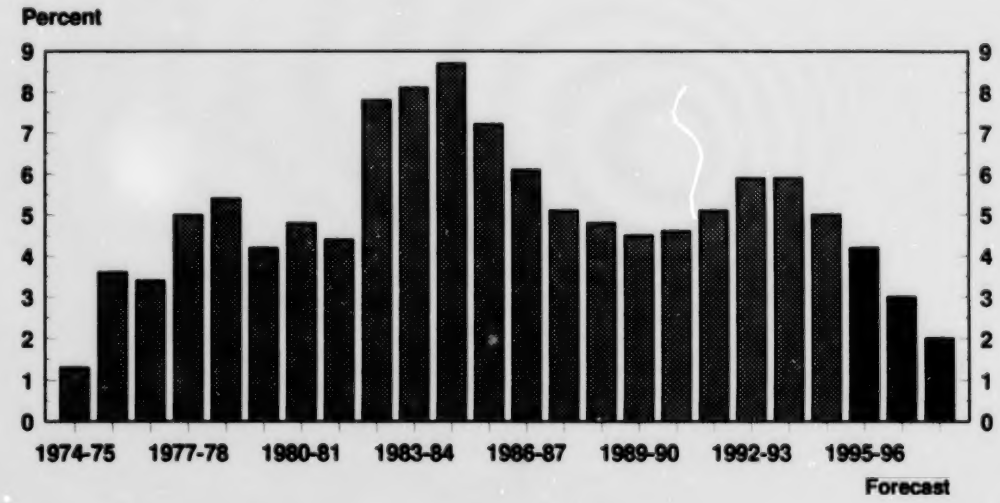
- We think that this "open-to-the-world" pattern will continue.

Canada - Growth in Real GDP
1990 - 95



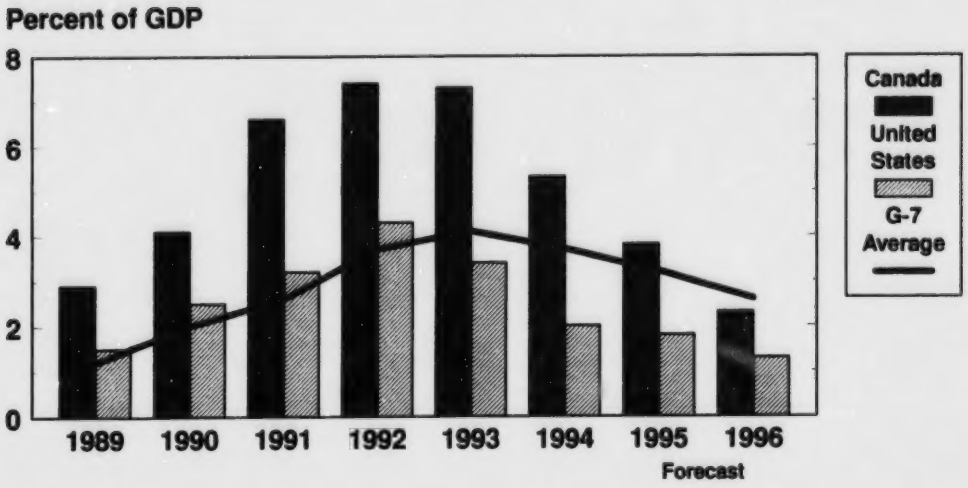
Source: Statistics Canada.

Canada's Federal Deficit as a Percent of GDP



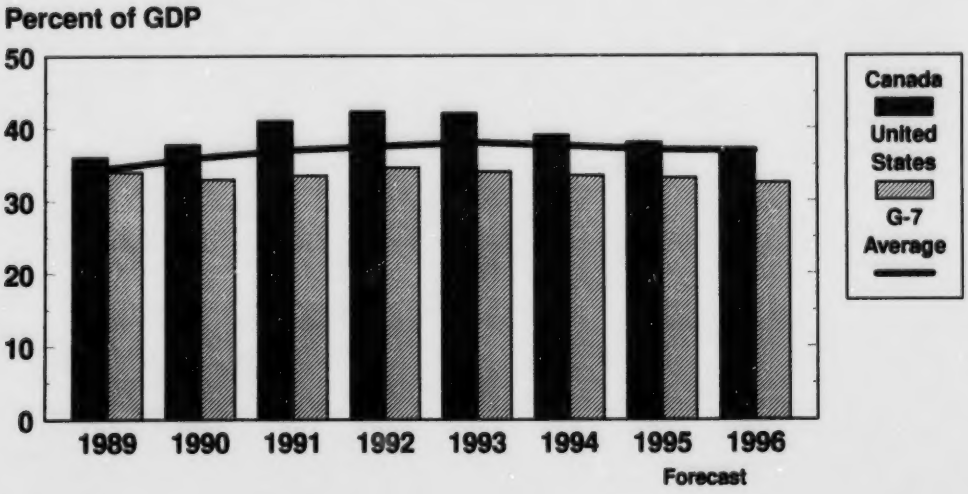
Source: Department of Finance.

Total Government Budget Deficit as a Percent of GDP
1989 - 96



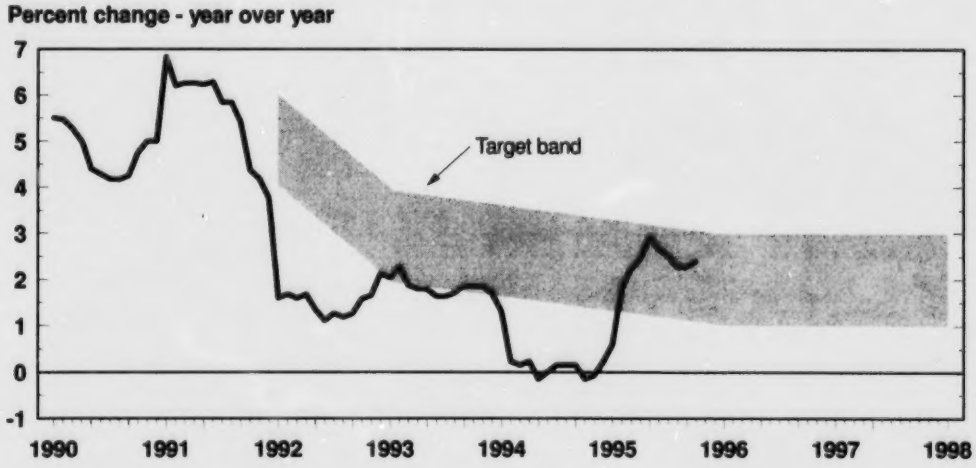
Source: Department of Finance.

General Government Program Spending as a Percent of GDP
1989 - 96



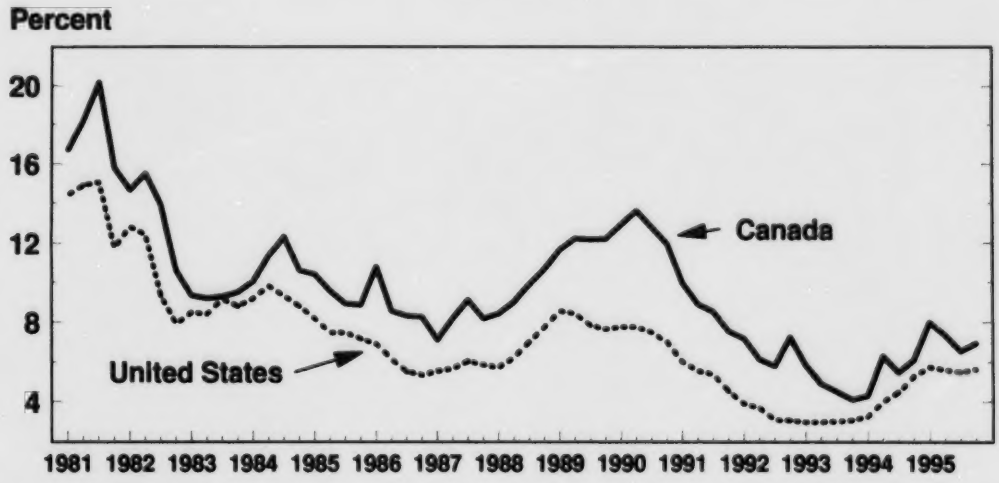
Source: Department of Finance.

Canada's Consumer Price Index, 1990 - 98



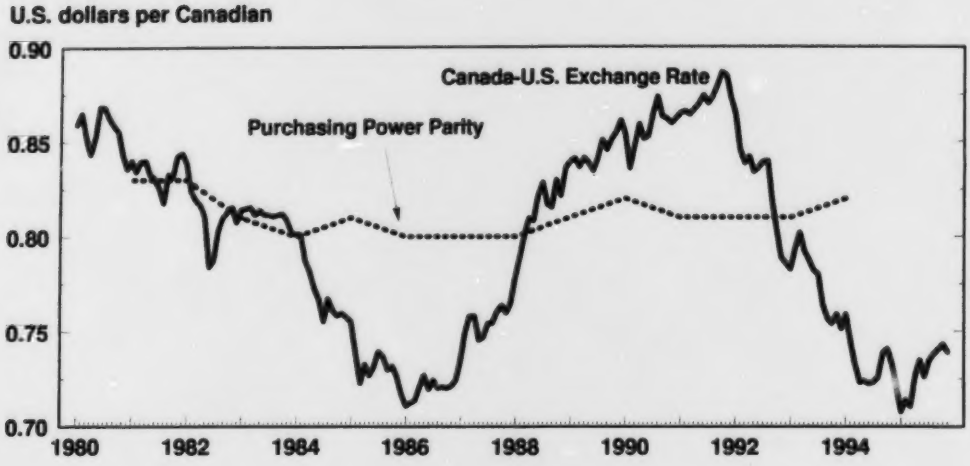
Sources: Department of Finance, Statistics Canada, Bank of Canada.

Interest Rates (90 Day Treasury Bill)
Canada and the United States
1981 - 95



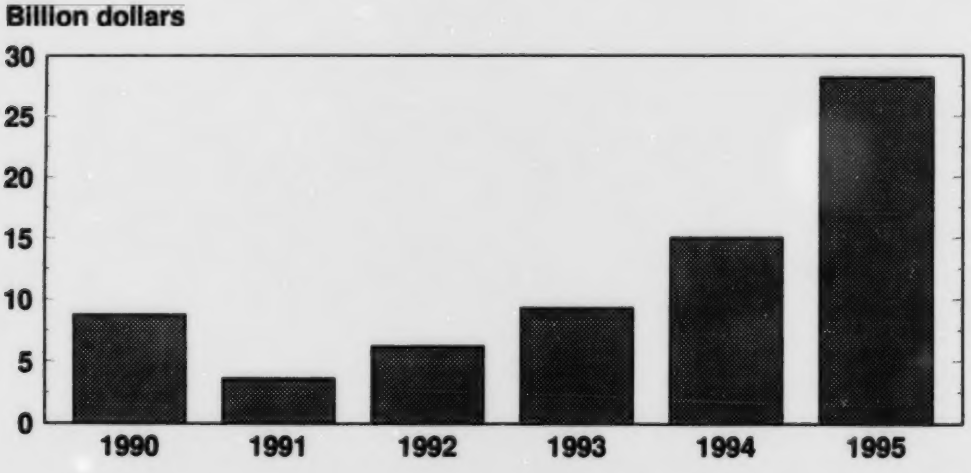
Sources: Statistics Canada, Conference Board of Canada.

Canada - U.S. Exchange Rate and Purchasing Power Parity



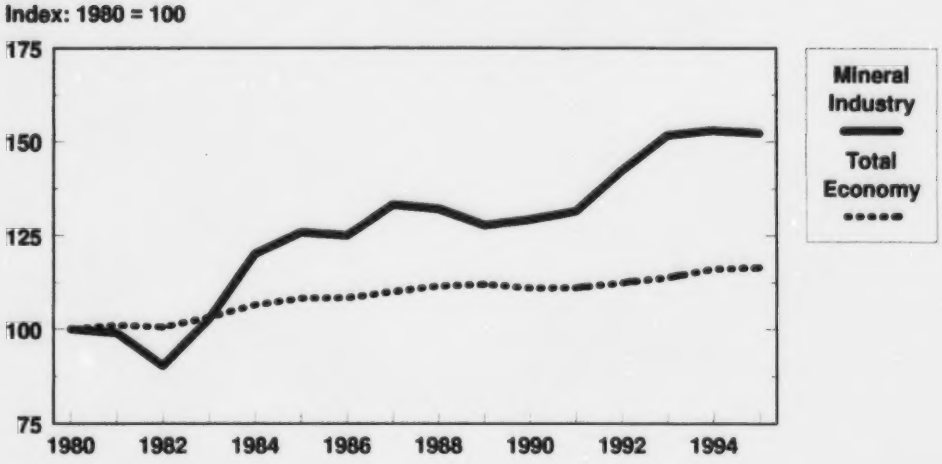
Sources: Department of Finance, Statistics Canada.

Canada's Merchandise Trade Balance 1990 - 95



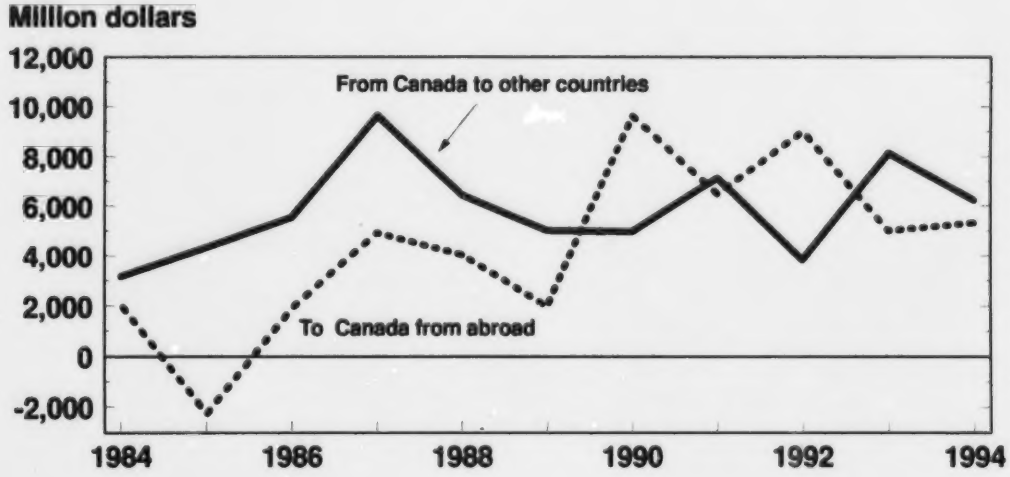
Source: Statistics Canada.

Trends in Productivity - Mineral Industry and Total Economy 1980-95



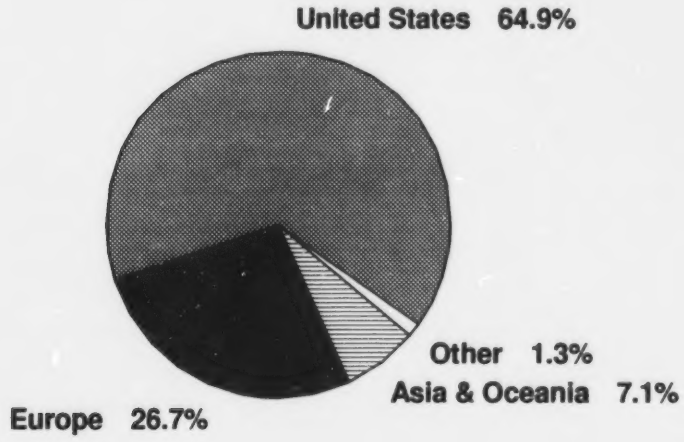
Notes: GDP at factor cost (1986 prices) / total activity employment.
"Mineral Industry" refers to the 4 Stages of the industry.
Sources: Natural Resources Canada, Statistics Canada.

Direct Investment Flows 1984 - 94



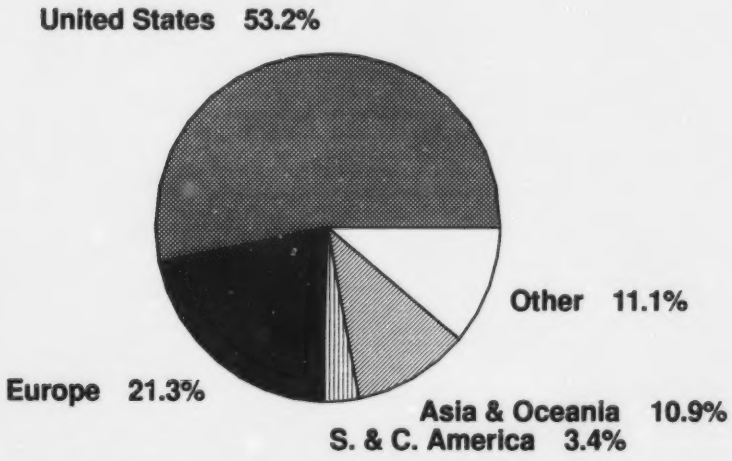
Source: Statistics Canada, Canada's Balance of International Payments.

Foreign Direct Investment Position in Canada, 1994
Value of Investment - $148 Billion



Source: Statistics Canada, Canada's International Investment Position.

Canada's Direct Investment Position Abroad, 1994
Value of Investment - $125 Billion



Source: Statistics Canada, Canada's International Investment Position.

PART II: CANADA'S MINERALS AND METALS INDUSTRY

Geological Survey of Canada, Geology of Canada, Map Number 8

- This map shows the major geological regions of Canada, the basis of a major mineral producer.

- The Canadian Shield, that is the central areas of this map (Proterozoic cover rocks, Late Proterozoic orogen, Early Proterozoic orogen, and Archean craton), is by far the largest Precambrian shield in the world, and accounts for 70% of Canada's metallic mineral production.

- The Appalachian mountain belt, which has been the source of much of the mineral wealth of the eastern United States, extends into Atlantic Canada where it is shown as Paleozoic orogen on the map.

- Western Canada contains a major segment of the resource-rich Cordillera (Mesozoic orogen area on the map), which stretches southward from Alaska, through the United States, Mexico, and Central and South America.

- The Phanerozoic central basins of the Canadian prairies, arctic islands, and southern Ontario and Quebec are best known as our principal source of fossil fuels and some industrial minerals such as potash and salt. However, these basins also have good potential for lead-zinc deposits such as those at Nanisivik and Polaris.

- However, by virtue of Canada's immense landmass, there remain vast areas that have been subjected to only reconnaissance geological work. Currently, only 30% of the Canadian landmass has been geologically mapped to modern standards at scales of 1:250 000 or larger.

Canadian Mineral Production: World Ranking, 1994

- The minerals and metals industry is an important component of the Canadian economy. In 1995, the minerals industry accounted for 16.2% of Canada's export earnings, 4.25% of gross domestic product (GDP) and 2.5% of employment.

- More than half of Canada's rail and sea freight transportation is dedicated to moving minerals and metals from their source, through the various stages of the value-added chain, to the end-user. In addition, Canada's mines and processing facilities provide the underpinning of many regional economies and are the major source of economic activity in 115 communities across the country.

- Canada's minerals and metals industry produces about 60 mineral commodities, including 26 metals, 22 nonmetals and 5 structural mineral commodities, and consists of some 300 mines having a total value of non-fuel mineral production of $19.3 billion. Canada also has 3000 stone/sand/gravel operations, and some 50 nonferrous smelters, refineries and iron plants. Canadian mineral operations engage in a variety of activities including mining, milling, smelting and refining, and metals-based semi-fabrication and fabrication. The industry is represented in all provinces and territories, although about 70% of Canada's production of non-fuel minerals (by value) comes from Ontario, Quebec and British Columbia.

- This slide shows Canada's international ranking for 16 key mineral products. Excluding titanium concentrates and aluminum, the remaining 14 commodities together account, in dollar terms, for over 58% of Canada's total non-fuel and coal mineral production (1995).

Value of Canada's Mineral Production, 1986-95

- Canada's current mineral production, in dollar terms, is near an all-time high. In fact, for coal, 1995 was a record year.

- The total value of metallic mineral production rose by 23% from $9.7 billion in 1994 to $12.0 billion in 1995. Copper, nickel, zinc, silver, molybdenum and gold all recorded significant increases while iron ore remained at roughly the same level of output as in 1994.

- The notable improvement in the overall value of production generally reflects the strong prices for mineral commodities that prevailed in 1995. Production tonnages generally increased, but not to the same degree as the values. Copper production tonnage grew by 19.3%, while its total value increased by 49.2%. Nickel production was valued at close to $2.0 billion in 1995, a gain of roughly 59.8%, although production levels increased by only 17.5%. The value of 1995 gold production rose by 2.7% with a corresponding increase of 1.8% in volume. The overall value of zinc production rose to $1.6 billion in 1995 from $1.3 billion in 1994 (an increase of 16.9%) with a 12% rise in production tonnage. Although the value of iron ore production remained the same as in 1994, iron ore tonnage increased by about 2%.

- The value of output of the nonmetallic group, which includes minerals such as asbestos, potash, salt, peat and sulphur, increased from $2.6 billion in 1994 to $2.8 billion in 1995, an 8.8% gain. Shipments of potash, the leading mineral in this group, increased by 3.9% in tonnage and by 13.6% in value from the corresponding 1994 levels.

- The value of production of structural materials, including clay products, sand and gravel, stone, cement and lime, increased by 1.1% (or about $27 million) to remain at approximately $2.6 billion in 1995.

Canada's Mining-Related Service Sector

- To achieve and maintain Canada's impressive level of mineral production, Canadian mining and exploration companies have had to develop new and unique mining and exploration methods to deal with our harsh climate and/or specific geological conditions. Thus, in addition to being a major mineral producer, Canada is also a major supplier of mining-related services and technology.

- Canada has over 600 companies which receive over 30% of their revenues by supplying the mining industry. As well, approximately 60 to 70% of Canada's geophysical industry sales are exports of equipment and services.

- In addition, Canada's airborne survey companies have 70% of the world market; Canadian geophysical equipment manufacturers, software developers and data interpretation companies each constitute approximately 60% of their respective world markets.

Expected Mine Openings

- At the beginning of 1995, there were a total of 284 mines (excluding sand and gravel quarries) in operation in Canada.

- In 1995, there were a number of positive developments for Canada's mining industry. Overall, 21 mines opened and 7 mines closed.

- In 1996, 24 mines are expected to come into production: 14 gold; 2 silver with lead, zinc and gold; 5 base-metal; 2 industrial minerals; and 1 coal. The capital costs of bringing these mines into production are estimated to be around $600 million.

- For 1997, we foresee at least an additional 25 openings with related capital costs exceeding $2.5 billion.

Mine Investment in Canada, 1969-95, by Investment Category

- Mining investment in Canada, after peaking in 1981, declined during most of the 1980s and early 1990s as competition for mineral investment capital intensified and mineral prices remained for the most part soft.

- In 1995, total capital expenditures by the Canadian mining industry (primary mineral production) totalled $1.7 billion. If one includes related downstream activities, this figure increases to approximately $3 billion.

- Based on intentions of mining companies, it appears that mine investment in Canada will be up in 1996, and will be even higher in 1997.

Exploration Expenditures in Canada by Junior and Senior Companies, 1969-96

- Canada was one of the world's top targets for non-fuel mineral exploration in 1995 as spending on mineral exploration continued to rebound from recent record low levels. Surveys conducted cooperatively by the federal and provincial governments indicate that exploration expenditures in 1994 were around $628 million, up from $477 million in 1993.

- As the slide indicates, for 1995, total expenditures are estimated to be around $764 million. Based on company intentions, Natural Resources Canada (NRCan) places 1996 exploration expenditures at around $945 million, which would be the third largest amount ever spent, in current dollar terms, on exploration in Canada.

- In Canada, a junior company is a company that carries out exploration but does not operate a producing mine in Canada. The total number of junior companies in Canada is in excess of 4000.

Surface and Underground Drilling by Year, 1973-95

- Diamond drilling, used in both exploration for new mineral deposits and in proving up new reserves at producing mines, accounts for the largest single expenditure in establishing new mineable resources in Canada.

- This graph of diamond drilling shows that drilling in Canada in 1995 was the second highest ever, only slightly below the record level set in 1987.

- Because diamond drilling constitutes an advanced stage of exploration, the high level of diamond drilling activity in 1995 demonstrates how favourably Canada is regarded as an exploration target and suggests that a steady stream of new deposits can be expected for the foreseeable future.

Canadian Mining Presence Worldwide, Distribution of Mineral Properties by Region

- Most of the properties of Canadian mining companies are in Canada.

- But, in November 1995, Canadian companies held interests in a portfolio of almost 2,750 foreign mineral properties located in 99 countries around the world. This represents an increase of about 320 properties, or up by 13% over the year.

- The focus abroad of Canadian companies has remained on the Americas. On a regional basis, almost 80% of Canadian mining projects outside of Canada are divided evenly between the United States and the large area that comprises Latin America.

- On a country basis, two dozen nations, spread across the globe, account for 80% of the more than 1700 Canadian mining projects abroad that are outside of the United States. There has been no growth in the number of Canadian projects in the United States over the past four years, and there are now more Canadian projects in Latin America than there are in the United States.

Canadian Mining Presence Worldwide, Countries Accounting for 80% of Foreign Holdings Outside the United States

- There are at least 200 Canadian mining companies active in South America, 100 in Mexico and 75 in Central America and the Caribbean. A considerable increase in the rate of growth in Canadian mining activity occurred during 1994 in Latin America, and this continued into 1995 in most countries of that region, although at a lesser pace than in the previous year. At the end of 1995, Canadian companies had 700 projects in South America, 240 in Mexico and 110 in Central America and the Caribbean. There were more than 100 Canadian projects in each of Venezuela and Chile, and more than 50 in each of Argentina, Bolivia, Brazil, Ecuador, Guyana and Peru.

- Canada's mining presence in Africa increased substantially over the last two years. By the end of 1995, 140 Canadian companies had interests in about 330 mining projects located in 26 African countries. Canadians had 60 projects, or more, in each of Ghana and Tanzania, and more than 20 in each of Botswana, Burkina Faso, South Africa and Zimbabwe.

- Examples of Canadian companies with a significant presence in Africa include: Trillion Resources Ltd. (50% interest in the producing Jena gold mine in Zimbabwe and a 50% stake in Consolidated Mining Corporation of South Africa); Rex Diamond Mining Corporation (operator of three producing diamond mines in South Africa); and Inmet Mining Corporation (45% interest in the Bougrine zinc-lead mine in Tunisia).

- There is, as well, a considerable variety of other mineral commodities of interest to Canadian companies in Africa. Some of these commodities are not produced or widely explored for in Canada. Canadians have projects dealing with the precious stones, emeralds, rubies or sapphires in Guinea, Tanzania and Zambia. They are looking for platinum group metals in South Africa, and for the heavy minerals in Namibia and Tanzania. They also have manganese projects in Burkina Faso and Namibia, and bauxite interests in Ghana and Guinea.

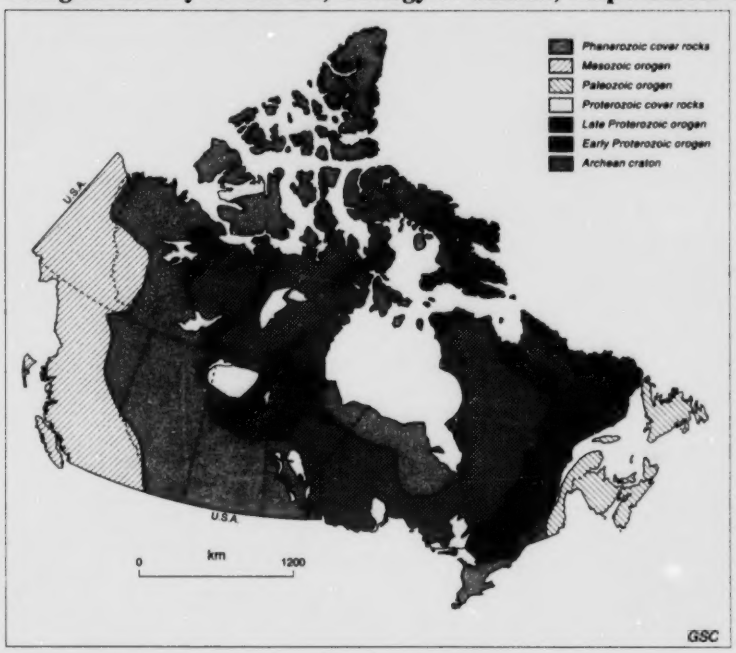
- At the end of 1995, about 40 Canadian companies were active in seven of the countries of Southeast Asia. They had interests in almost 70 projects in that region. Canadian activity is greatest in the Philippines, where there are over 35 Canadian projects, and in Indonesia, where there are more than 15.

- One of the best-known Canadian projects in Indonesia currently belongs to Calgary-based Bre-X Minerals Ltd. Bre-X announced, in late February 1995, an initial resource calculation for its Busang gold deposit on the eastern portion of the island of Kalimantan. Almost 2.75 million ounces of gold, contained in over 35 million tonnes grading 2.44 g/t, had been reported in the Central zone of this deposit as at January 1996. Thirty million ounces are expected to be outlined eventually at Busang.

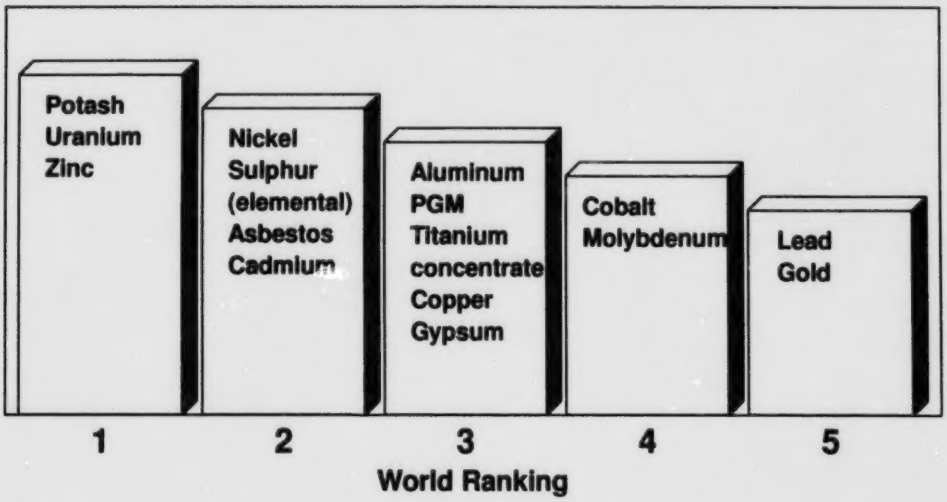
- In Thailand, Canadian projects involve gold, zinc-lead-silver, tungsten-tin and potash. Canadians have recently initiated projects in Vietnam and Myanmar (Burma). In Vietnam and Myanmar, as well as in Laos and Malaysia, Canadians are focussing almost exclusively on gold.

- For the foreseeable future, Canada will continue to maintain a strong domestic base of operations, and Canada and Australia will continue to compete to attract the largest per country share of mineral exploration capital.

Geological Survey of Canada, Geology of Canada, Map Number 8

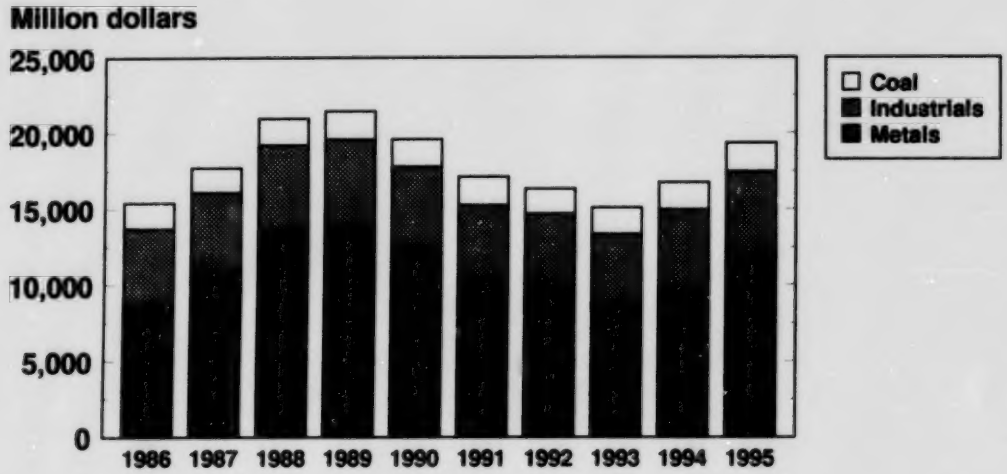


Canadian Mineral Production
World Ranking
1994



Source: Natural Resources Canada.

Value of Canada's Mineral Production
1986 - 95



Sources: Natural Resources Canada, Statistics Canada.

Expected Mine Openings

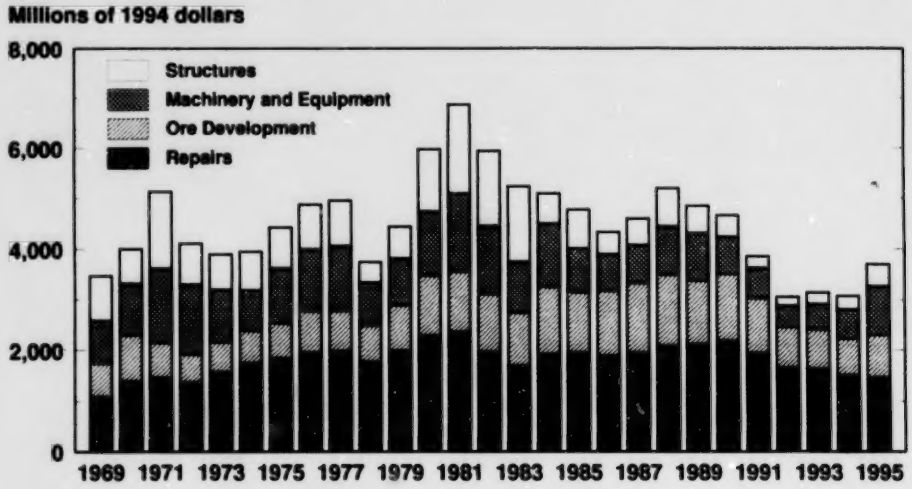
1996

▪ Gold	14
▪ Silver & Base Metals	2
▪ Base Metals	5
▪ Industrial Minerals	2
▪ Coal (Thermal)	1
	24

1997

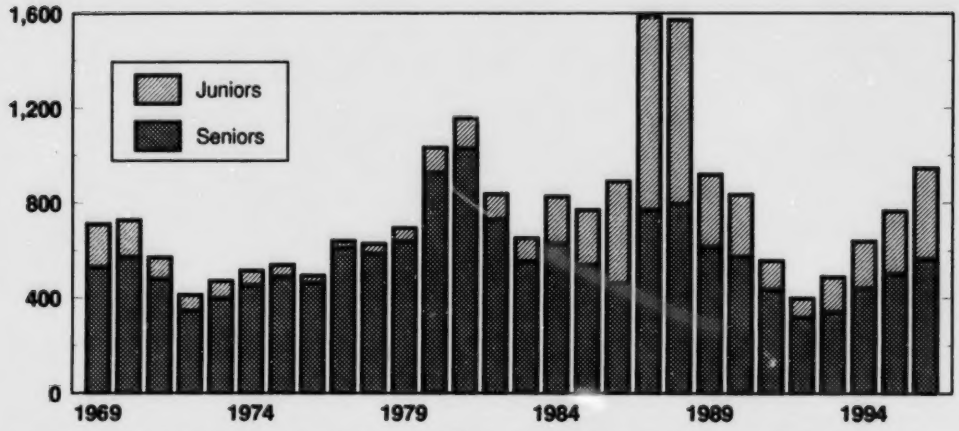
▪ Gold	10
▪ Gold & Base Metals	3
▪ Base Metals	9
▪ Industrial Minerals	1
▪ Uranium	1
▪ Diamonds	1
	25

Mine Investment in Canada, 1969 - 95 by Investment Category



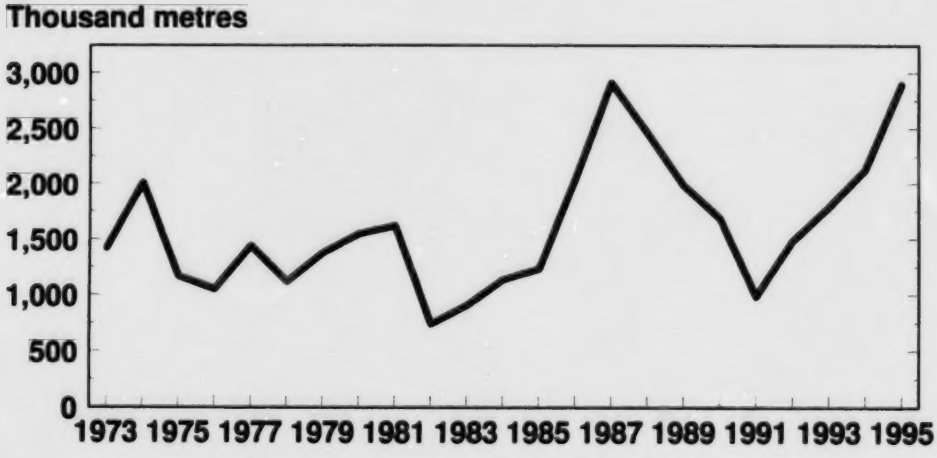
1994 data are preliminary, 1995 data are intentions.
Source: NRCan, based on Statistics Canada data.

Exploration Expenditures in Canada by Junior and Senior Companies, 1969 - 96



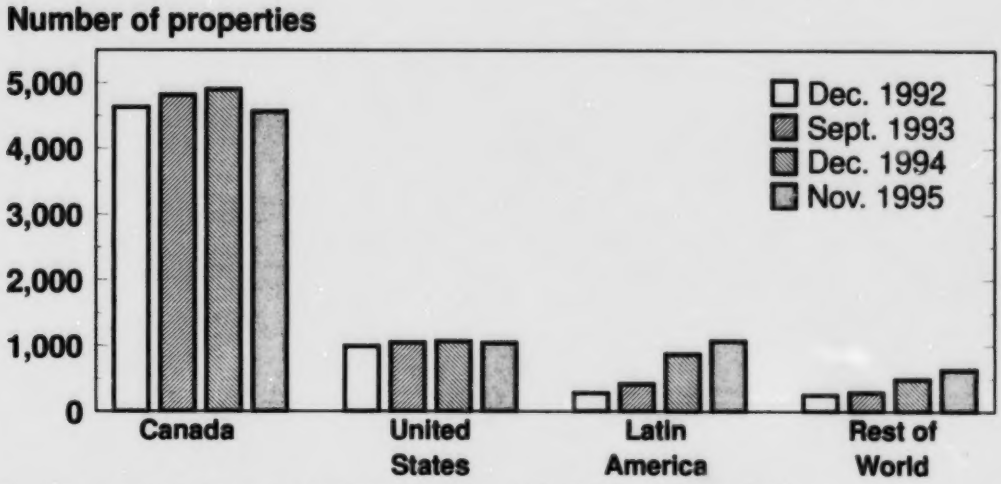
Notes: 1995 exploration expenditures are preliminary; 1996 are company intentions. Exploration expenditures for 1975 to 1981 are overstated by an average of about 17% relative to earlier and later years because of changes to the methodology used by Statistics Canada over the years. The expenditures include overhead.
Sources: Natural Resources Canada and Statistics Canada.

Surface and Underground Drilling by Year 1973 - 95



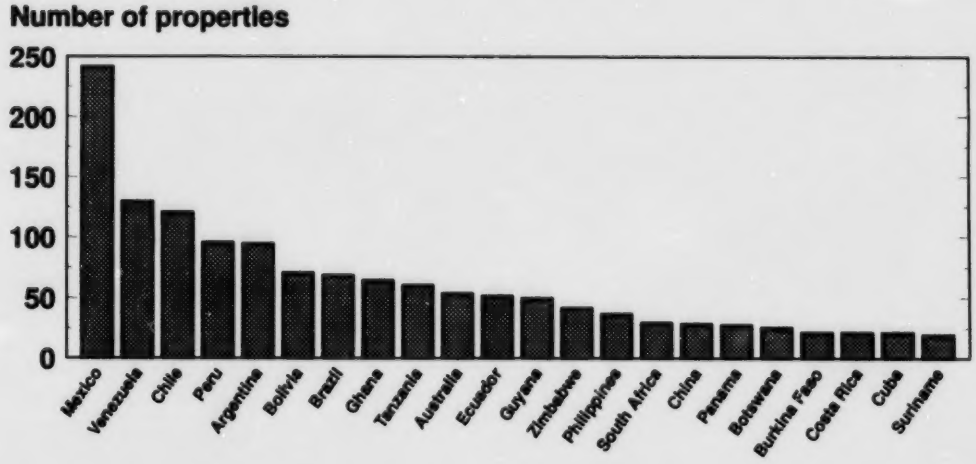
Note: CDA data are incomplete because not all member companies report their drilling.
Source: Canadian Diamond Drilling Association.

Canadian Mining Presence Worldwide, Distribution of Mineral Properties by Region



Source: Natural Resources Canada. Based on MIN-MET Canada database and used under license.

Canadian Mining Presence Worldwide, Countries Accounting for 80% of Foreign Holdings Outside the United States



Source: Natural Resources Canada. Based on MIN-MET Canada database and used under license.

PART III: GLOBAL OUTLOOK FOR MINERALS AND METALS

Real Price and Cost Index for Selected Metals, 1980-95

- One of the most striking features of the international market for minerals and metals has been the tendency for real prices to fall over the period at least since 1979-80.

- This graph shows Natural Resources Canada's (NRCan) base-metal price index. The index is based on the average U.S. dollar prices of copper, lead, nickel and zinc weighted by Western World production of these commodities. Over this 15-year period, the markets have gone through almost two complete cycles. It appears that the most recent recovery still has some life, perhaps 1½ to 2 years before the next peak will be reached.

- In any case, this downward trend has forced marginal producers to reduce costs to survive and the lower-cost producers have reduced costs to maintain their profit margins. This trend has had a great deal to do with worldwide capital flows in the mining business and in the location and development of new mines.

- The real cost index shown was developed in the same way as the price index, using the same metals. As shown, over the same period the industry was able to reduce real costs even faster than real prices were falling. The trend line for costs is steeper downward than is the trend line for prices.

- The downward trend in real costs reversed briefly during the high metal-price years of the late 1980s, but did not increase as much as prices did, and costs resumed their downward trend as prices fell again in the early 1990s.

Real Potash and Coal Price (U.S. dollars) Indices, 1980-95

- The downward pressure on real prices, and related pressures to improve productivity, have not just been restricted to metals. Many nonmetals have also been subjected to these pressures.

- For instance, between 1981 and 1994, the real price of steam coal dropped by more than 50%. During the same period, the real price of coking coal fell by over 40%.

- Real potash prices, while hitting a low in 1986, have recovered somewhat, but are still below their 1980 level.

- This real price decline is often cited as evidence that the long-run "terms of trade" are moving against minerals and metals. I will not debate this proposition at any length here, other than to say that the tendency for product prices to fall over time is neither unique to natural resources nor necessarily indicative of a declining industrial sector.

- Furthermore, it is very difficult to determine whether a downward trend is signalling a long-run secular decline or is the result of continuing technological change that reduces cost, which in turn maintains profitability (on average) and capital inflow into the industry sector.

- In today's economy, some of the most dynamic growth industries are experiencing falling product prices. This is true of the personal computer and computer software industries and many, if not all, of the high-growth industries linked to the so-called information revolution. As with resource industries, this trend is driven by the forces of competition and technological advance, which provide the cost reductions that underpin low prices.

- I will now briefly turn to the supply and demand situation of copper, lead, zinc, nickel and gold.

World Refined Copper Consumption and Production, 1985-2005

- The information in this next section on supply and demand is based on projections generated by NRCan's commodity officers and AME Mineral Economics of Australia. [Production data include both mine production and production from secondary sources.]

- World demand for copper is expected to grow strongly over the next decade, particularly in Asia's newly developing economies and in China. In addition, by the early part of the next decade, Eastern Europe and the former Soviet Union are likely to become net importers of refined copper.

- Even though demand is expected to grow at around 3% per year, copper production is likely to temporarily outstrip demand by 1996-97.

- Approximately 45% of the increase in mine production of copper will come from Chile - expansion of Escondida and Andina, and the development of the Radomiro Tomic, El Abra, Collahuasi, La Candelaria, and Zaldivar deposits. Additional increases will come from Indonesia (additions to PT Freeport Indonesia's Grasberg/Ertsberg complex), Argentina (Bajo de la Alumbrera), and Australia (a number of medium-sized projects).

World Primary Nickel Consumption and Production, 1985-2005

- [In this chart the term primary nickel, as established by the International Nickel Study Group, refers to nickel in a form that is ready for use by consumers - refined nickel (Class I), charge nickel (Class II) and chemical production. The production and consumption numbers exclude recycled stainless steel.]

- World nickel consumption over the next decade is projected to grow at an overall rate of around 2% per year, with the stainless steel sector accounting for most of this growth. Consumption should outstrip production over the next few years until new capacity is brought on stream.

- Encouraged by healthy demand growth over the past few years, nickel producers are moving to expand production through the development of new projects.

- Capacity expansion near the turn of the decade, coupled with an economic downturn, could lead to overcapacity and place some downward pressure on prices. It should be noted that much of the world's nickel business is conducted under long-term pricing arrangements, so that demand is relatively insensitive to short-term price movements.

- According to AME Mineral Economics, annual average nickel prices in real terms (1994) will likely remain in a band between US$3.40 and $4.00 per pound until around the year 2005.

World Refined Zinc Consumption and Production, 1985-2005

- The long-term demand for zinc is forecast to grow at an annual rate of around 2.7%. The main source of demand for zinc is construction and automobiles - galvanizing, alloy diecasting and zinc oxide production.

- Excess refining capacity and spare mining capacity that are waiting to come on stream, despite strong demand, will likely keep zinc inventories on the high side for the next couple of years.

- Zinc prices, though, are expected to strengthen somewhat in the long run as demand outpaces production. It is interesting to note that zinc is one of the few metals that has actually experienced a long-run increase (since 1957) in its real price.

World Refined Lead Consumption and Production, 1985-2005

- Following a period of strong growth, lead consumption should moderate until the turn of the decade. [Lead demand is primarily driven by its use in automotive batteries (over 60% of the market).]

- You will note that there are two forecast projections on this slide. The upper one is from AME Mineral Economics and the lower one is from NRCan's commodity officer for lead. Such a difference in views really points to a high degree of uncertainty as to future developments.

- The lead industry, in recent years, has been undergoing a period of dramatic adjustment as a result of environmental considerations. What is important to recognize is that lead use continues to increase while risks to human health have declined. Organization of Economic Co-operation and Development (OECD) data indicate that for countries that monitor lead in blood, the average concentration has declined to below levels of national concern.

- Lead will likely remain in short supply over the next few years. This is due in part to Basel restrictions on the movement of scrap lead, which have created a shortage of feed for secondary lead smelting in developing countries. Primary lead smelting capacity will likely remain in surplus, keeping treatment charges down.

World Gold Consumption, Supply, and Price Projections, 1995-2005

- During the 1990s, newly mined gold production accounted for, on average, over 70% of the world's total gold supply. Scrap, and the sale of gold by central banks, made up most of the remaining difference.

- Gold demand for fabrication has outstripped the supply of gold from new production and scrap. This shortfall has been made up, for the most part, by sales from official gold reserves. According to AME Mineral Economics, gold consumption will outstrip production until well past the year 2005. The continued sale of gold reserves by central banks, though, will help to offset some of this physical shortage of supply.

- The main factor that has contributed to this imbalance has been a rapid growth in gold consumption in the Indian sub-continent and China.

- AME Mineral Economics, because of this forecast shortage, sees the price of gold climbing, in real terms, to over US$500 per ounce by the year 2005.

Metals Price Index - Current U.S. Dollar Prices, 1985-2000

- Based on NRCan's views of nonferrous metals prices over the next five years, we have extended our metals price index as shown on this slide.

- Nonferrous metals production in Canada amounted to almost $15.7 billion in 1994. When aluminium production is added, this number jumps to $19.4 billion. This total accounts for over 55% of all non-petroleum mineral production in Canada.

Copper Stocks and LME Prices, 1991-96

- While copper stocks have increased significantly in the second half of 1995, they are still at relatively moderate levels.

- In the short term, copper consumption is expected to remain strong, which should keep the price of copper from falling much below US$1.10 per pound.

Nickel Stocks and LME Prices, 1991-96

- This slide for nickel (and the next one for zinc) show how inventories have dropped over the past year - thereby putting upward pressure on prices.

Zinc Stocks and LME Prices, 1991-96

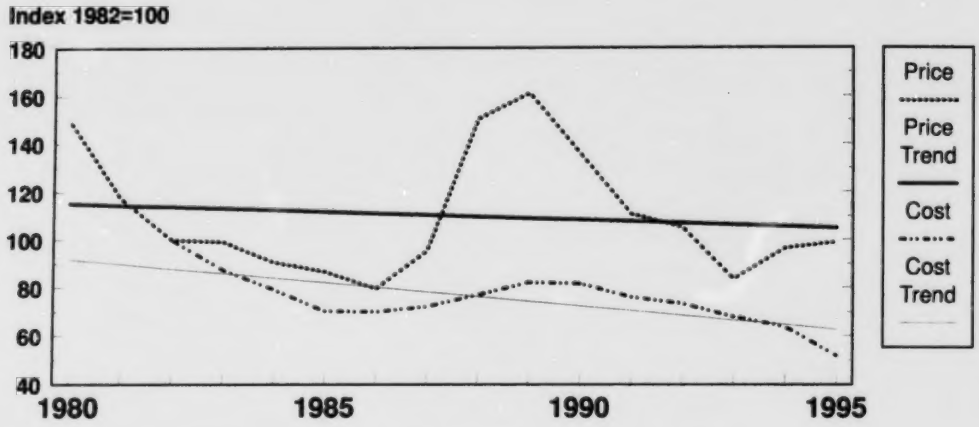
- Here is the zinc chart.

Lead Stocks and LME Prices, 1991-96

- As you saw on the previous slide, zinc stocks are still relatively high. This has dampened zinc production and, in turn, the output of lead as a co-product.

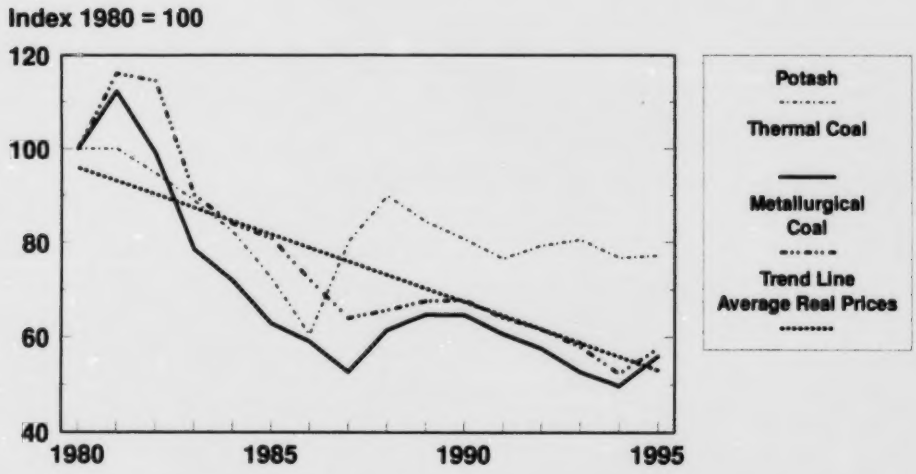
- As a result, the lead production deficit continues to draw down stocks, putting upward pressure on the price of lead.

Real Price and Cost Index for Selected Metals, 1980 - 95



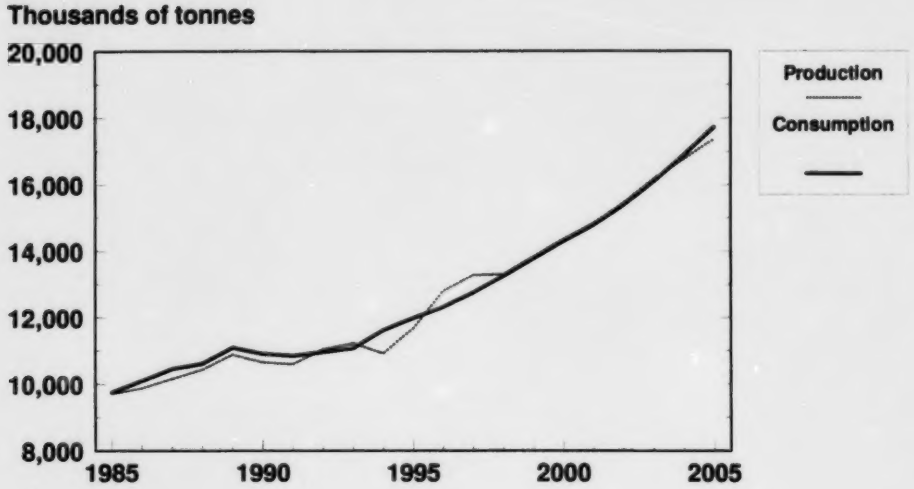
Notes: Incudes copper, zinc, lead and nickel. Values are weighted by Western World production.
Sources: Brook Hunt & Associates, Natural Resources Canada.

Real Potash and Coal Price (U.S. dollars) Indices 1980 - 95



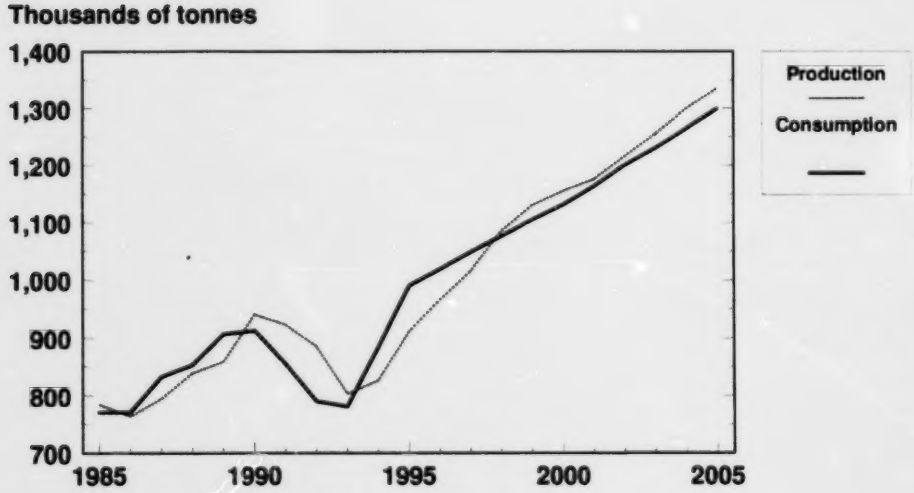
Notes - Potash: coarse, major producer, 60% K_2O; Australian and United States thermal and metallurgical coal contract prices, Benchmark price, f.o.b.
Sources: AME Mineral Economics, Natural Resources Canada.

World Refined Copper Consumption and Production
1985 - 2005



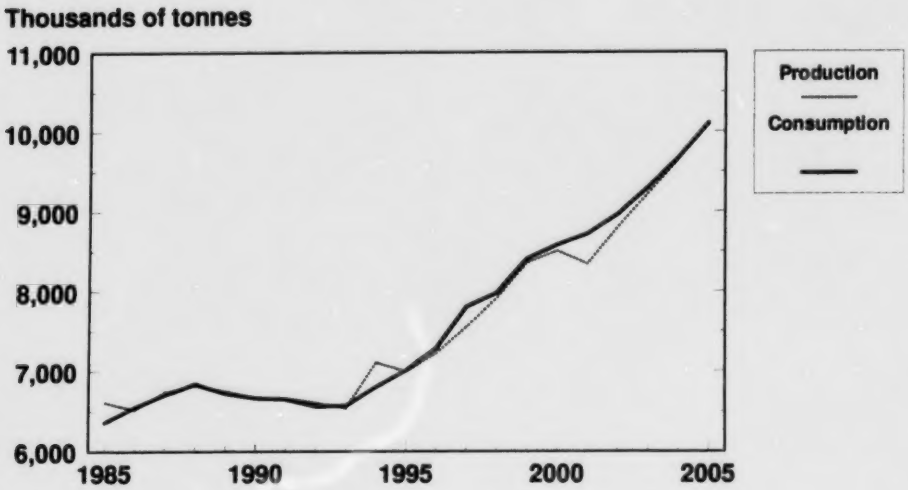
Sources: AME Mineral Economics, Natural Resources Canada.

World Primary Nickel Consumption and Production
1985 - 2005



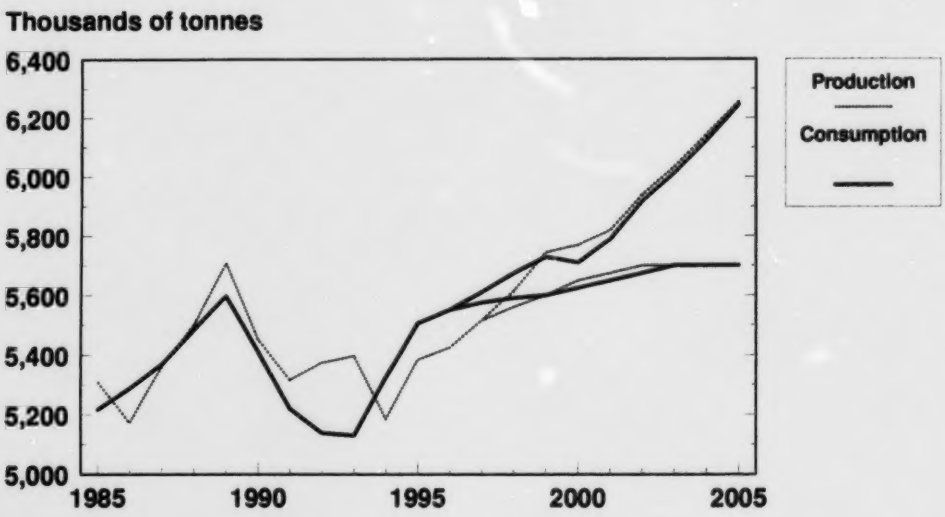
Sources: AME Mineral Economics, Natural Resources Canada.

World Refined Zinc Consumption and Production
1985 - 2005



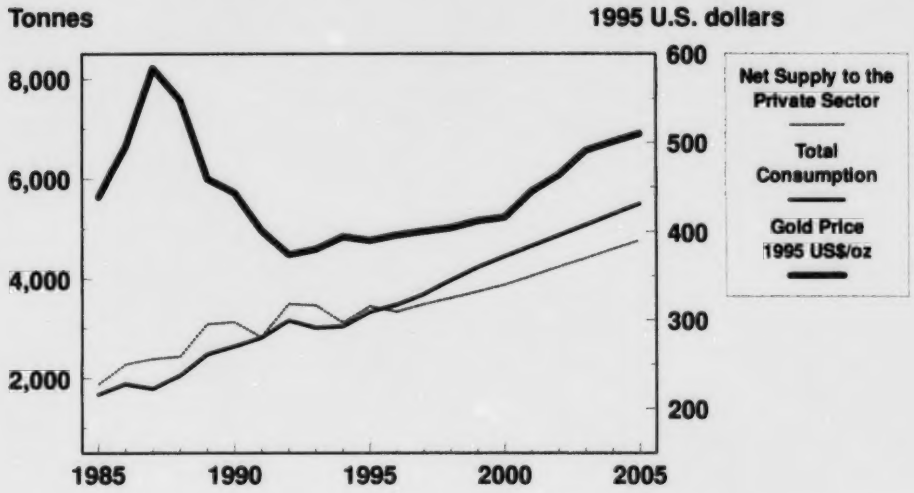
Note: Figures include zinc production from secondary sources.
Sources: AME Mineral Economics, Natural Resources Canada

World Refined Lead Consumption and Production
1985 - 2005



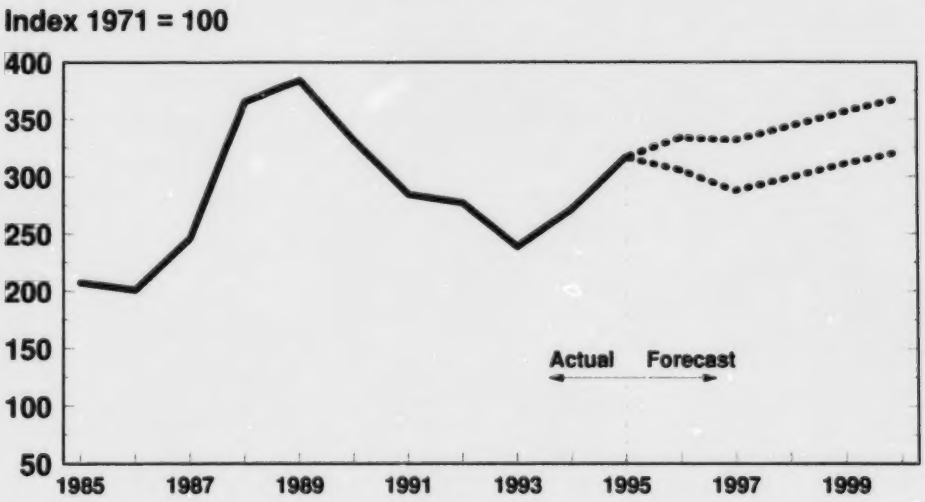
Note: Figures include lead production from secondary sources.
Sources: AME Mineral Economics, Natural Resources Canada.

World Gold Consumption, Supply, and Price Projections
1985 - 2005



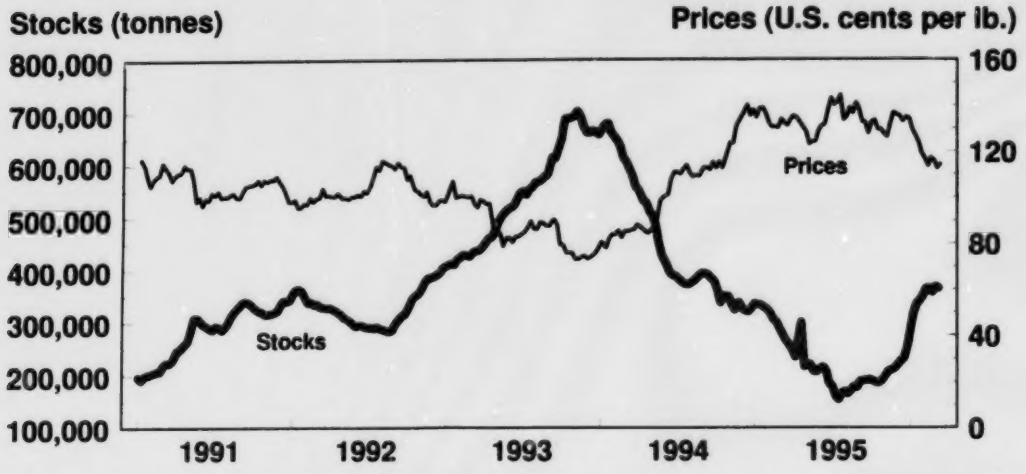
Sources: AME Mineral Economics, Natural Resources Canada.

Metal Price Index - Current U.S. Dollar Prices
1985 - 2000



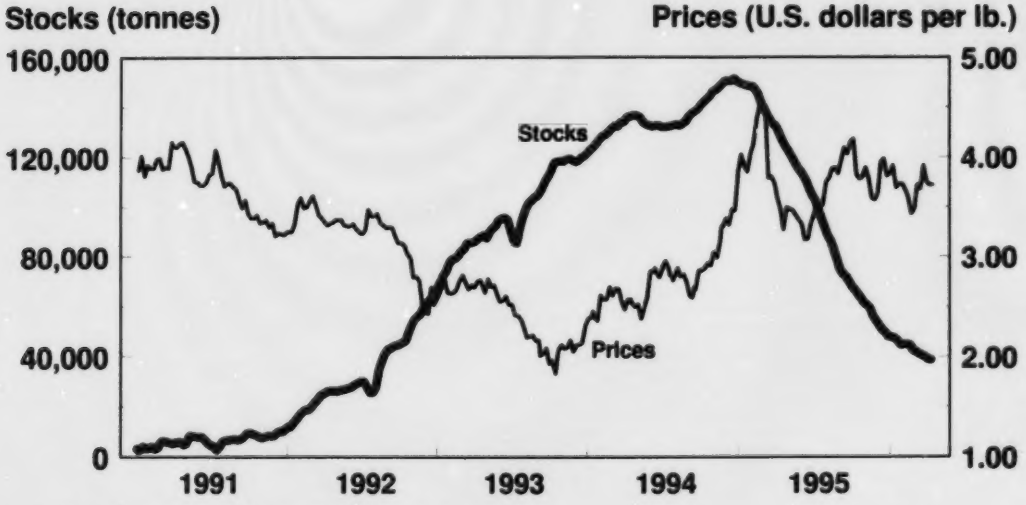
Source: Natural Resources Canada.

Copper Stocks and LME Prices
1991 - 96



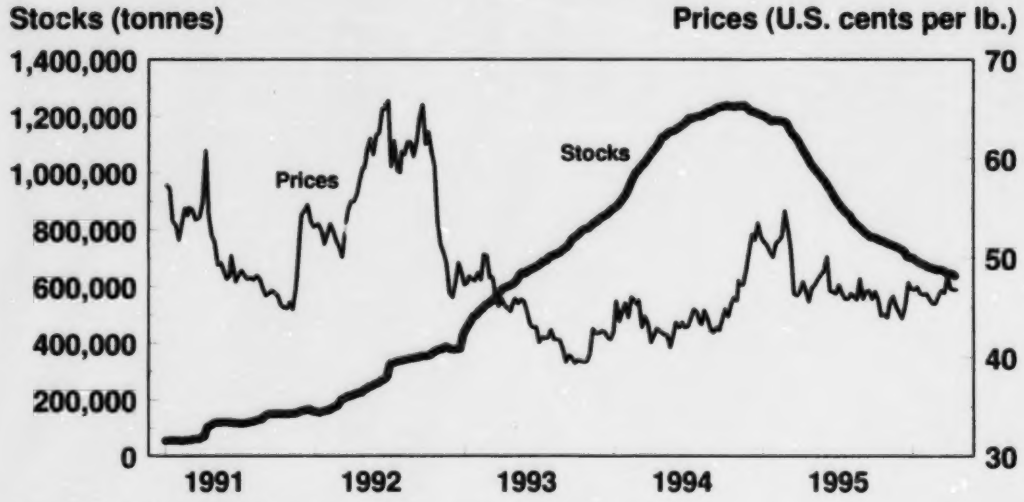
Note: "LME" refers to the London Metal Exchange. Copper stock levels combine Comex and LME stocks.
Source: NRCan, Minerals and Metals Sector.

Nickel Stocks and LME Prices
1991 - 96



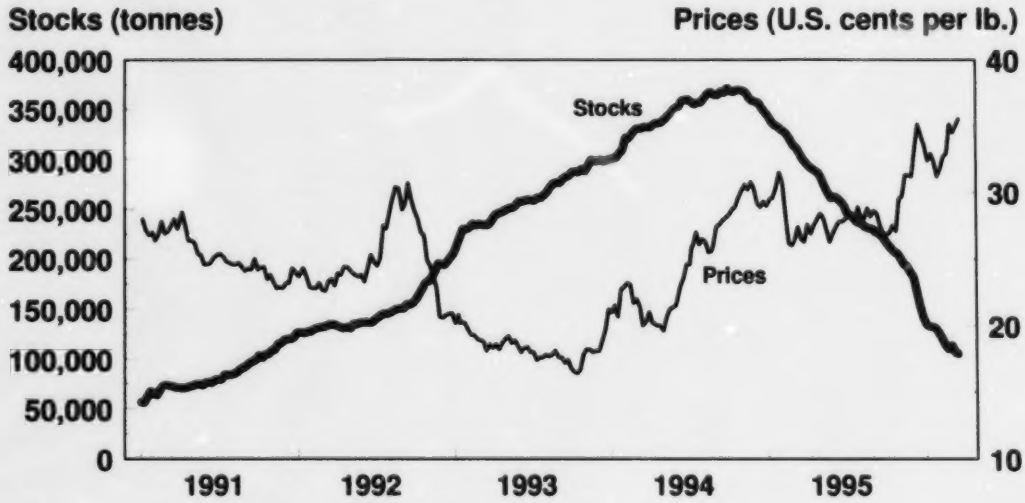
Note: "LME" refers to the London Metal Exchange.
Source: NRCan, Minerals and Metals Sector.

Zinc Stocks and LME Prices
1991 - 96



Note: "LME" refers to the London Metal Exchange.
Source: NRCan, Minerals and Metals Sector.

Lead Stocks and LME Prices
1991 - 96



Note: "LME" refers to the London Metal Exchange.
Source: NRCan, Minerals and Metals Sector.

PART IV: INTERNATIONAL COMPARISONS OF PRODUCTION COSTS

Forecast of Average Production Costs of Major Copper-Producing Countries, 1995 and 2000

- I would like to review the cost-competitiveness of Canada's more important mineral commodities vis-à-vis the Western World.

- Brook Hunt's projections of Western World mines that would be in production in 2000, and their costs, were used to develop the 2000 cost curve.

- This slide shows the average cash costs of Western World copper production for the years 1995 and 2000 (data for the former Soviet Union are unavailable). The vertical axis shows production costs in U.S. cents per pound. The horizontal axis shows the cumulative percentage of production by country, going from the lowest-cost producer to the highest-cost producer.

- Both curves are calculated using 1995 dollars and exchange rates.

- Canada is the third largest producer of copper in the Western World after Chile and the United States. Canada's cost position, towards the right of the curve in 1995, is not likely to change substantially by the year 2000. As one can see, Canada's costs are well below the average price of copper of US$1.33/lb in 1995. As well, in both years shown, the cost curves are relatively flat. In 1995, for example, about 75% of Western World production is in the cost range of US66¢/lb to US78¢/lb.

- During 1995, two small copper-producing mines commenced production in Canada - the 1100 Lens project at the Bouchard-Hébert mine in Quebec and the Photo Lake mine in Manitoba.

- For the future, there are a number of other projects that are awaiting the completion of permitting procedures and/or financing arrangements. These projects include the Carmacks Copper and Minto projects in the Yukon; Huckleberry, Kemess South and Mount Polley in British Columbia; and Konuta Lake in Manitoba.

- Outside of Canada, recent large increases in capacity include expansions at Bingham Canyon and Morenci in the United States and Escondida in Chile, as well as the commencement of production at La Candelaria in Chile. Over the remainder of the 1990s, additional expansions are expected at Escondida and La Candelaria, and at PT Freeport in Indonesia.

- By the year 2000, new production is expected to commence at Bajo de la Alumbrera in Argentina, Collahuasi in Chile, Soloba in Brazil, and Quellaveco in Peru. Significant new solvent extraction/electrowinning (Sx-Ew) capacity is planned at El Abra, Escondida and Radimoro Tomic in Chile, and at Dos Pobres in the United States.

- A feature to remember about Canadian copper production is that it comes primarily from polymetallic deposits. As a result, Canada's copper operations also produce other metals such as gold, silver, molybdenum, zinc and lead.

- In the case of Sudbury, which is famous for its nickel mines, copper itself is a major by-product or co-product. In fact, Sudbury accounts for about 20% of Canada's total copper production. The recent discoveries at Sudbury of the copper-rich Victor deposit (grading 6% copper and 2% nickel with geological reserves of 36 million tonnes) and the Nickel Rim deposit (grading 25.53% copper and 4.13% nickel - an undiluted inventory of 520 000 tonnes) ensure that the area will continue to be a major Canadian copper producer.

- By virtue of their polymetallic nature, Canadian operations benefit from a certain "risk reduction advantage" that may not be available, to the same extent, to other copper mines in Chile and the United States.

- This is particularly true in the case of Sx-Ew operations. While there are significant cost advantages (although recovery rates are lower than in the standard flotation process) to producing copper using Sx-Ew technology, all by-product credits are lost in the process. As a result, revenue flows have to be totally dependent upon the price of copper.

Forecast of 1995 Copper Cash Cost of Production of Major Producing Countries by Quartile

- Because average costs for a country can hide wide variations in individual operating costs, it is useful to break cost data down into quartiles. This slide shows projected 1995 copper production costs for the three largest producing countries by quartile.

- The first and second quartiles clearly show the cost advantage of Sx-Ew production since it is in these quartiles that one finds the Sx-Ew producers of Chile and the United States. Furthermore, the first quartile is dominated by two large low-cost mines: the Escondida mine in Chile and the Bingham Canyon mine in the United States.

- Virtually all of Canada's copper is produced by conventional smelting methods, and in this type of production we are very competitive with other countries. Production in the third and fourth quartiles is nearly all non-Sx-Ew, or conventional production. Canada is below Chile and almost tied with the United States in the third quartile, where average costs are very similar in the three countries. In the fourth quartile, Canada's costs are above those found in the United States, but below those found in Chile.

Forecast of Average Production Costs of Major Nickel-Producing Countries, 1995 and 2000

- Canada is the Western World's largest producer of nickel, accounting for about 20% of the world supply. (On a worldwide basis, Russia is the largest producer, but is not shown here because accurate cost data are not available.)

- In 1995, Canada's average cost of about US$2.20 per pound made it a low-cost producer of nickel. Canada's competitiveness is due, in part, to the fact that all of its nickel operations mine sulphide ores and are not dependent on the price of oil, as most lateritic producers are.

- The discovery of several new significant nickel deposits in Canada in 1994 and 1995 should ensure that Canada remains the world's lowest-cost producer.

- Canada's nickel production is expected to continue to increase over the next few years as Falconbridge's Raglan operation comes on stream in 1997.

- In addition, by the end of the century, the Voisey's Bay deposit should be in full production. The size and grade of this project, together with the substantial by-products of copper and cobalt, mean very low production costs. Published reports suggest that Voisey's Bay could produce 133 million pounds of nickel a year at cash costs of US40¢-50¢/lb. These costs [illegible]lected in the cost curve shown here for the year 2000.

- Elsewhere in the Western World, RTZ is developing its Fortaleza nickel sulphide project in Brazil, and in Venezuela work could begin in 1996 on the Loma de Hierro property. As well, Inco is conducting a feasibility study on its Goro project in New Caledonia.

Forecast of Average Production Costs of Major Zinc-Producing Countries, 1995 and 2000

- Canada is the Western World's largest producer of zinc.

- As shown in this slide, Canadian zinc producers were among the lowest-cost in the Western World in 1995. Canada's cost position is projected to slip slightly in 2000 compared with 1995, as Australia moves to the left of Canada on the curve. In absolute terms, however, the changes anticipated are very small.

- Canada will remain a major low-cost zinc producer well into the next decade. Production is expected to increase in 1996 with full production at the Faro-Grum-Dy project in the Yukon and the opening of the Grevet mine in Quebec.

- Other Canadian zinc projects which are likely to be in production by the year 2000 are:

  · Cominco's Kudz Ze Kayah project in the Yukon;
  · Redfern's Tulsequah Chief project in British Columbia;
  · Noranda's Halfmile Lake project in New Brunswick; and
  · San Andreas Resources' Prairie Creek project in the Northwest Territories.

- Canada's current competitive position stems from the application and development of advanced mining technology (e.g., remote-controlled operated mobile equipment, rockbreaking applications and underground communications), low energy costs and good infrastructure.

- Outside of Canada, the McArthur River mine in Australia commenced production in 1995. Other projects likely to begin production before the end of the decade include the Century project (also in Australia), the Iscaycruz project in Peru, and the Galmoy and Lisheen projects in Ireland.

Forecast of Average Production Cost of Major Gold-Producing Countries, 1995 and 2000

- Canada is the fourth largest gold producer in the Western World after South Africa, the United States and Australia. In 1995, Canadian production was about 150 tonnes.

- Canada's cost of gold production is below Western World averages, is competitive with that of the United States and Australia, and is much lower than that of South Africa.

- In South Africa, economic pressures, in the form of inflation and exchange rate movements, have taken their toll on mining costs. As well, South African mining methods have changed relatively little in decades. All the deposits are underground, many are very deep and have falling ore grades, and mining methods are very labour intensive. These factors, together with major economic and social considerations, translate into much higher costs of production in South Africa than in the other major gold-producing countries.

- Canada's gold production costs are expected to stay low, and production is expected to increase. Gold mines scheduled to come on stream in the next few years include:

  · the Troilus and Vezza projects in Quebec;
  · the Musselwhite, Holloway, and Madsen projects in Ontario;
  · the Mount Polley and Kemess South projects in British Columbia;
  · the Brewery Creek and Mount Nansen projects in the Yukon;
  · the Komis and Goldfield projects in Saskatchewan;

· the Bisset Gold and Farley Lake projects in Manitoba; and
· the Nugget Pond and Rendell-Jackman projects in Newfoundland.

Forecast of 1995 Gold Cash Cost of Production of Major Producing Countries by Quartile

- This chart provides another way of looking at average production costs. It divides each country's production into quartiles based on the average cash cost of production. For example, the first quartile shows the lowest cost 25% of production in each country.

- Among the largest gold-producing countries, Canada is the lowest-cost producer in the first quartile of costs, and is second lowest for the second, third and fourth quartiles, just slightly above the United States, the lowest-cost producer in these three quartiles. South Africa is the highest-cost producer in each quartile.

- The lowest-cost three quartiles (i.e., 75%) of Canada's gold output has an average cash production cost of under US$200 per ounce.

Forecast of Average Gold Production Cost in Canada, 1995

- This slide shows the comparative cost situation for individual Canadian gold mines.

- All primary Canadian gold mines had operating costs in 1995 which were below the 1994 average gold price of US$384/oz. Many mines were well below that price.

- Before moving on, I would like to show the operating results of two gold mines.

Golden Giant - Cumulative After-Tax Cash Flow, 1985-94

- The Golden Giant mine is wholly owned by Noranda Minerals, and is one of the three Hemlo gold mines, the other two being the David Bell and Williams mines. This area was not suspected to be gold-bearing until the discovery in 1981; in fact, highways and railways had traversed this area for many years.

- The Golden Giant mine produces some 420 000 ounces of gold per year. Production costs are about US$130/oz, the second lowest among Canadian underground gold mines. The ore grades 0.35 oz/t gold.

- All three Hemlo mines are so profitable that they started paying income and mining taxes during their first year of production, quite uncommon for mining projects in Canada because of the large accelerated write-offs available.

- The **cumulative** cash flow profile (after tax) indicates a profitable enterprise indeed. The initial investment costs, some US$292 million, were completely recovered by the end of the third year of operations. **(Note that the graph shows cumulative cash flows, not year-by-year cash flows, in order to show the payback period of the project.)**

Lupin Gold Mine - Cumulative Cash Flow, 1981-94

- The Lupin mine is interesting because of its remote northerly location. The mine, owned by Echo Bay Mines Ltd., began production in late 1982. It is the world's northernmost gold mine outside of Russia. It is located about 89 km south of the Arctic circle.

- The mine was constructed, at a cost of $135 million, over a two-year period (1980 to 1982) by bringing parts, machinery and equipment into the mine site using a Hercules aircraft.

- Because of its remote location, it needs fairly high ore grades (0.345 oz/t) to be profitable. Cash operating costs are around US$225/oz. The mine produces about 200 000 ounces of gold per year.

- The mine reached full production three years after development began, and full pay-back of investment was achieved in the seventh year of operations (1987). **(Note that again the graph shows cumulative cash flows, not year-by-year cash flows, in order to show the payback period of the project.)**

- The mine is supplied by a 665-km ice or winter road from Yellowknife. Each year, the road is constructed over a three-week period and, for nine weeks from January to mid-March, trucks travel night and day to supply the mine with enough fuel and equipment for the following year's mining operations.

- In 1994, more than 1.6 million pounds of freight and 23 million litres of fuel were transported to the Lupin mine over the ice road.

Metallurgical Coal - Port Cash Costs (F.O.B.), 1994

- Canada is also a major exporter of coal, the fourth largest in the world. Approximately 95% of Canada's coal exports originate in western Canada. Canadian coal exports, over 85% of which are metallurgical coal, were up an estimated 6% in 1995 to well over 33 million tonnes.

- Canadian coal production in 1995, a record year, reached approximately 74.7 million tonnes (most of the increase being from metallurgical coal production). Traditionally, Canadian coal production is 60% thermal and 40% metallurgical. More than 90% of Canada's coal production is from surface operations.

- The high quality of Canadian coal, and the efficiency of Canada's transportation network and port loading facilities, guarantee Canadian coal's acceptance on international markets. Canada exported coal to more than 20 different countries in 1995. As usual, Japan was Canada's biggest customer, followed by the Republic of Korea, the United Kingdom, and Taiwan (in 1994 Taiwan ranked sixth). A number of foreign buyers have taken equity positions in Canada's coal sector to secure long-term supply.

- This chart shows the range of 1994 cash costs (f.o.b. or free on board) for metallurgical coal for the main exporting countries - Australia, the United States, South Africa, Canada, Poland, Indonesia and Colombia [cost data for China (ranked sixth) and Russia (ranked seventh), are not available].

- Although most Canadian coal mines are around 1100 km from tidewater and rail costs are high, our metallurgical coal producers have export costs that are competitive with most other producers in the world. Canadian coal producers are able to partly mitigate the long transport hauls to port through extremely efficient handling systems. The costs per tonne per kilometre are among the lowest in the world.

Index of Metallurgical Coal Cash Costs, 1989-94

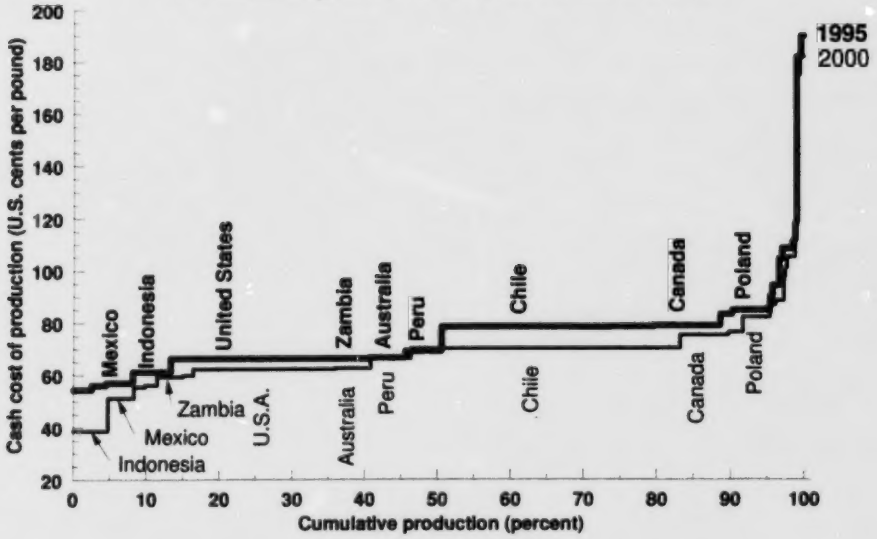
- Canadian metallurgical coal producers have been very successful in improving their cost position in recent years. Since 1991, for example, costs in Canada have fallen dramatically, by over 23%, a trend that is expected to continue. These gains are the result of improvements in productivity and the rationalizations that have occurred within the industry.

- In the 1991 to 1993 period, a major restructuring occurred in coal mine ownership. Now coal exporting mines are owned by six companies, a number of whom are well established and involved in mining many commodities globally: Fording Coal Ltd., Teck Corporation, Manalta Coal Ltd., Luscar Ltd., Smoky River Coal Ltd., and Hillsborough Resources Ltd.

- The industry is set for long-term security of supply, competitiveness and quality. The mines are in place with good reserves and one new mine, Cheviot by Luscar, is scheduled to open in 1998 in Alberta.

- I would now like to turn my attention to the bottom line, the financial performance of the industry.

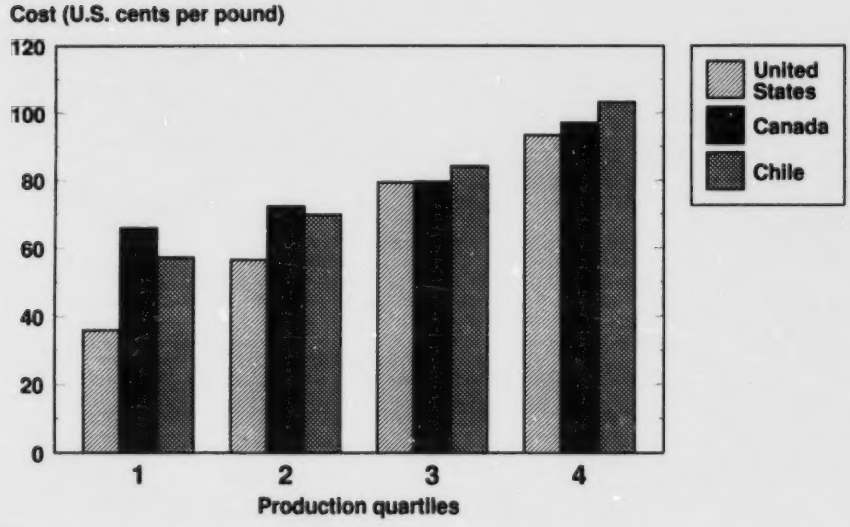
Forecast of Average Production Costs of Major Copper Producing Countries, 1995 and 2000



Source: Based on data from Brook Hunt & Associates and used with express permission.

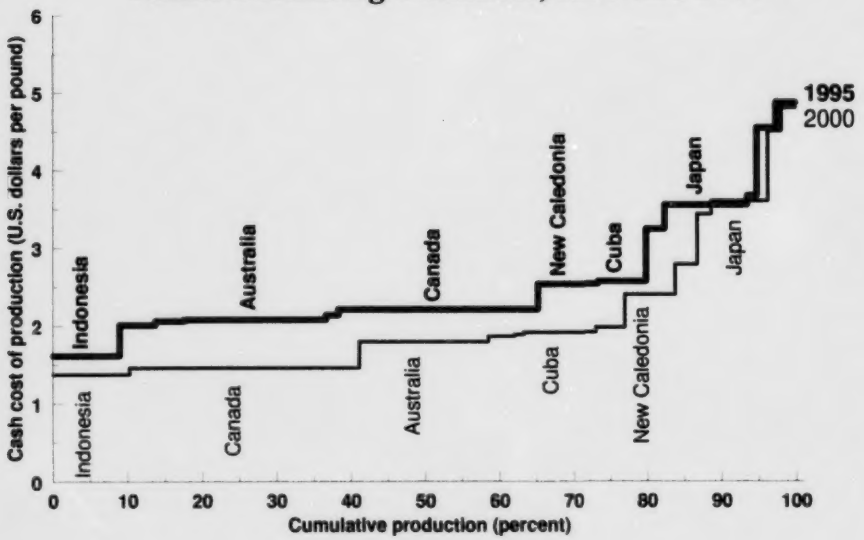
1995 dollars

Forecast of 1995 Copper Cash Cost of Production of Major Producing Countries by Quartile



Source: Minerals and Metals Sector, NRCan. Based on data from Brook Hunt & Associates.

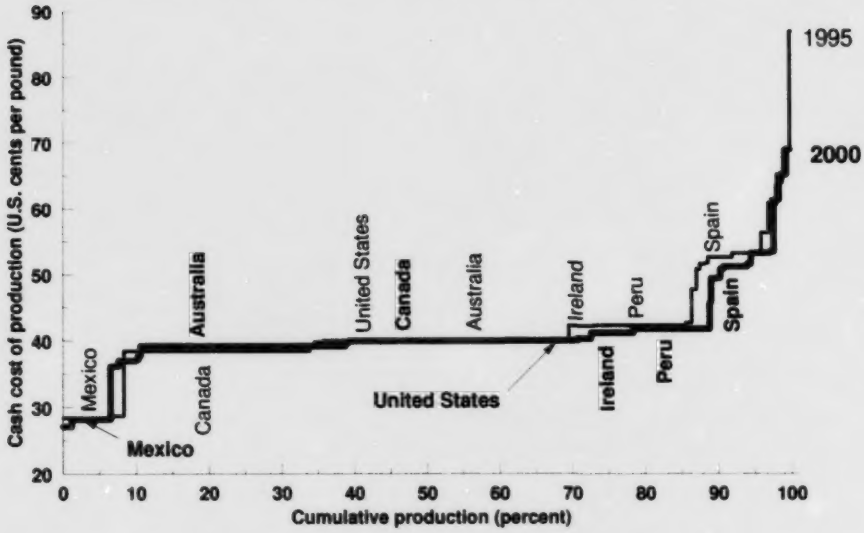
Forecast of Average Production Costs of Major Nickel Producing Countries, 1995 and 2000



Source: Based on data from Brook Hunt & Associates and used with express permission.
Cost league for Canada for 2000 includes Voisey's Bay.

1995 dollars

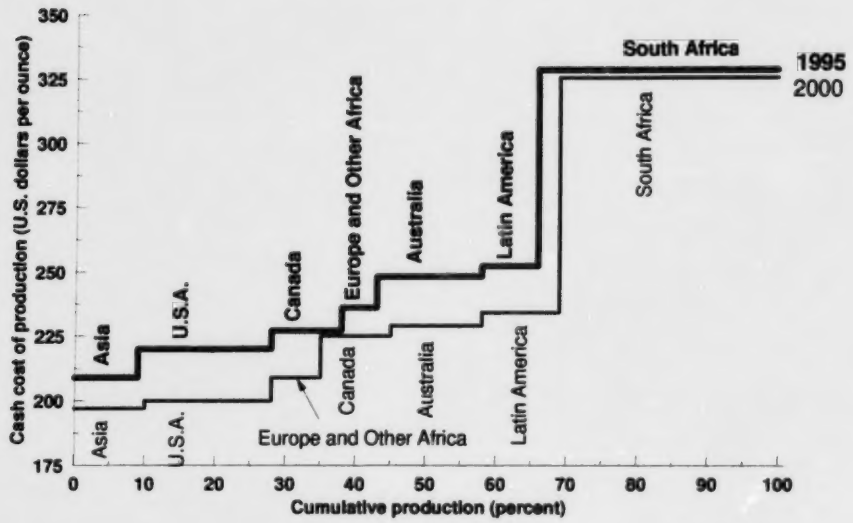
Forecast of Average Production Costs of Major Zinc Producing Countries, 1995 and 2000



Source: Based on data from Brook Hunt & Associates and used with express permission.

1995 dollars

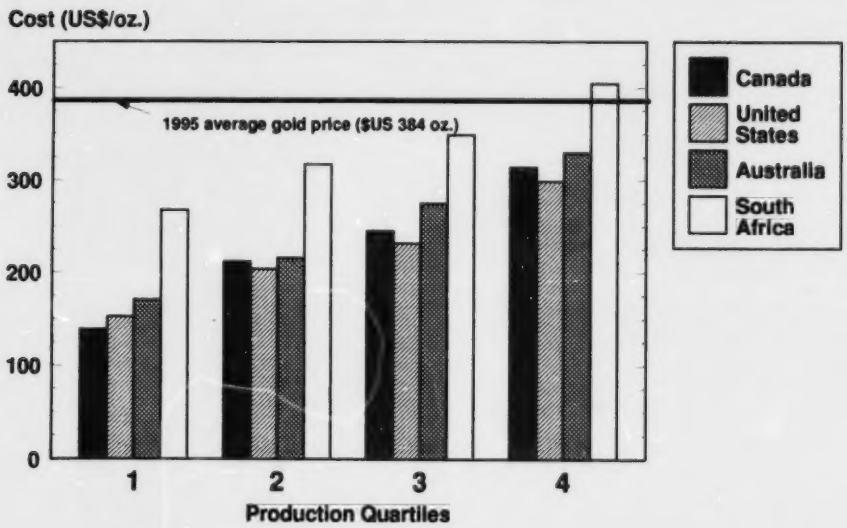
Forecast of Average Production Costs of Major Gold Producing Countries, 1995 and 2000



Source: Based on data from Brook Hunt & Associates and used with express permission.

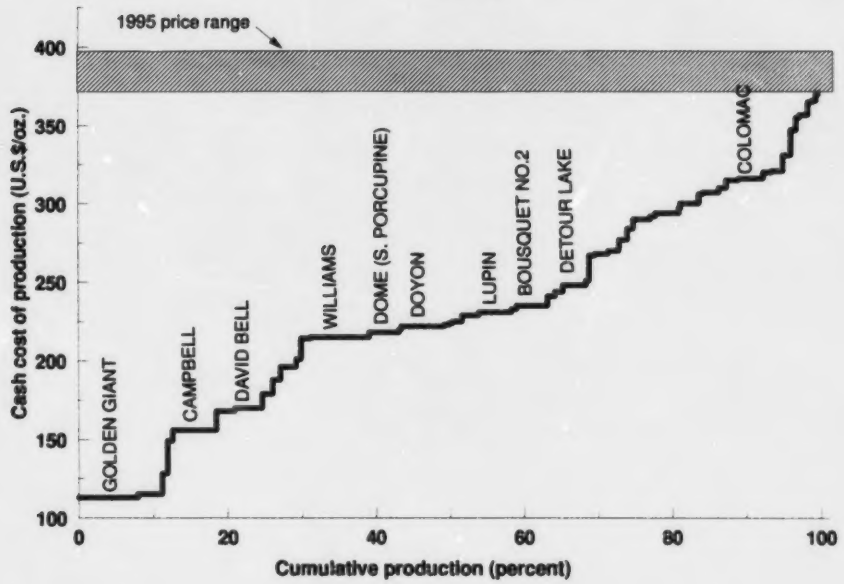
1995 dollars

Forecast of 1995 Gold Cash Cost of Production of Major Producing Countries by Quartile



Sources: Minerals and Mining Sector, NRCan. Based on data from Brook Hunt & Associates.

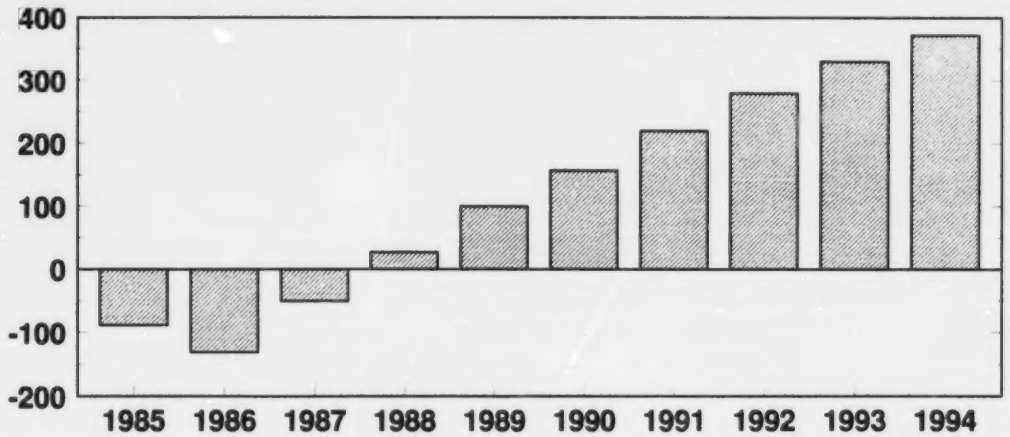
Forecast of Average Gold Production Costs in Canada
1995



Source: Natural Resources Canada.

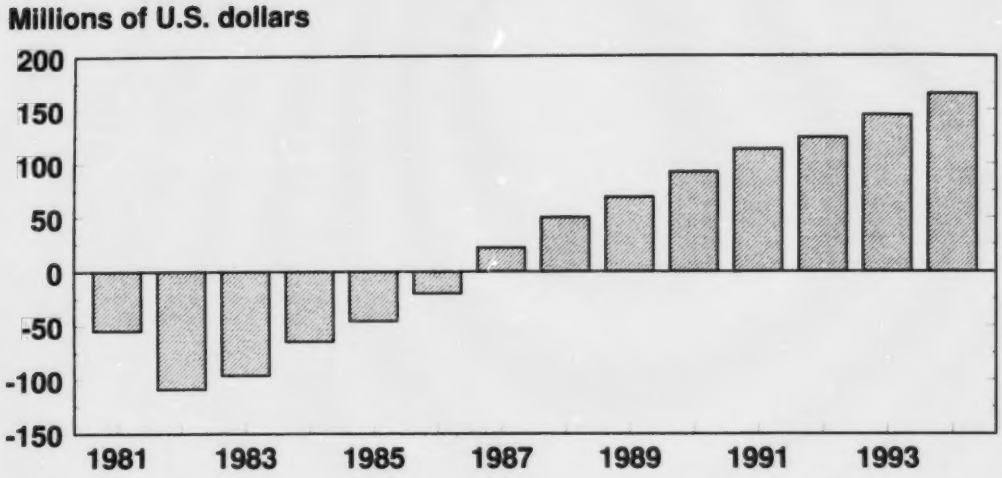
Golden Giant
Cumulative After-Tax Cash Flow
1985 - 94

Millions of U.S. dollars



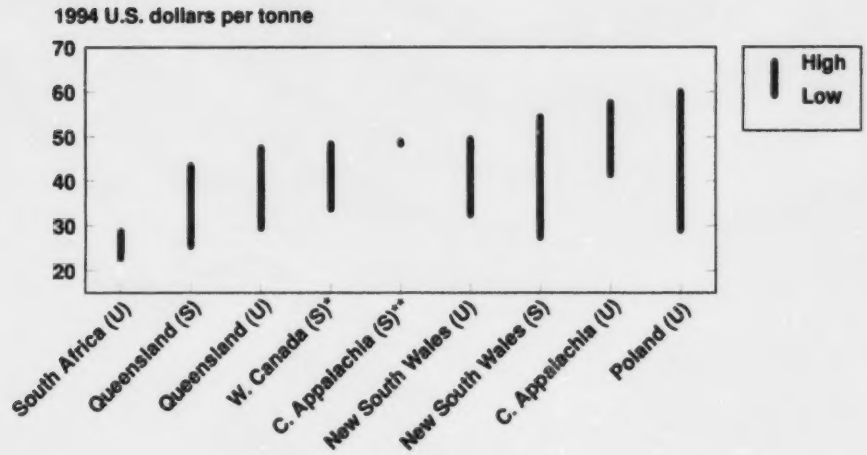
Source: Company annual reports.

Lupin Gold Mine
Cumulative Cash Flow
1981 - 94



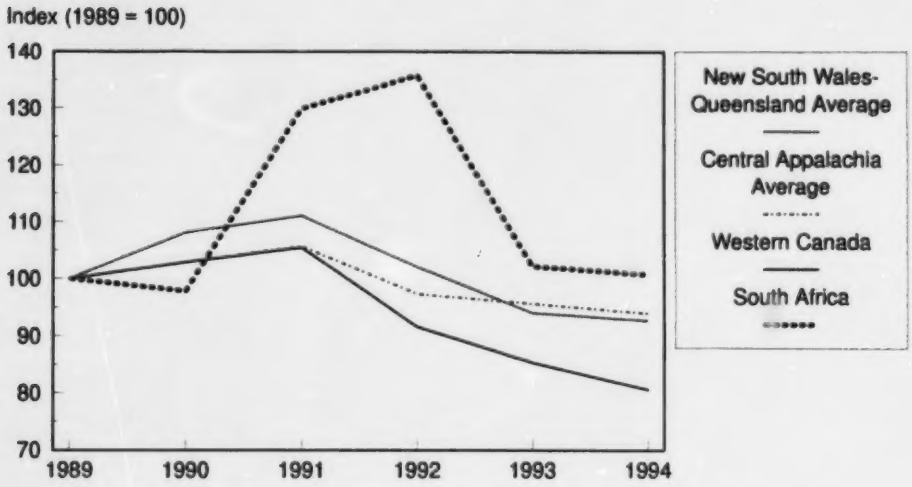
Source: Company annual reports.

Metallurgical Coal - Port Cash Costs (F.O.B.)
1994



Notes: F.O.B. = Free on Board; (U) = Underground Mine; (S) = Surface Mine; W. = Western, C. = Central;
* Natural Resources Canada estimate; ** = International Energy Agency Representative Cost.
Sources: International Energy Agency Coal Research, London, 1994; Natural Resources Canada.

Index of Representative Metallurgical Coal Cash Costs 1989 - 94



Source: International Energy Agency Coal Research, London, 1994.

PART V: FINANCIAL PERFORMANCE OF CANADIAN MINERAL COMPANIES

Nonferrous Metals and Primary Metal Products, Operating Profits, 1993-95

- This slide shows the operating profits of Canadian nonferrous metals and primary metal products producers.

- [By operating profits, I mean operating revenue, excluding investment income, less operating costs, excluding financing charges and extraordinary items.]

- Industry profits have improved tremendously since the early 1990s when metal prices were low and the Canadian dollar was high.

Performance of the Toronto Metals & Minerals Index, and Selected Nonmining Stock Indices, 1992-95 (Exchange Rate Adjusted)

- This slide illustrates the performance of the Toronto Stock Exchange's (TSE) Metals & Minerals index, the Financial Times (FT) Ordinary index, and the Nikkei Dow 225 index.

- In order to evaluate these indices from the perspective of an international investor, they have been adjusted to take into account movements in exchange rates over the period. Each index has been adjusted by the local currency's movement vis-à-vis the U.S. dollar. This chart should be interpreted from the viewpoint of an investor using U.S. dollars.

- Note:

  · TSE Metals & Minerals - up 44%;
  · Financial Times Ordinary - up 20%; and
  · Nikkei Dow 225 - down 4%.

- I recognize that this graph is quite complex, and coming to any definitive conclusion as to which index has out-performed the others is difficult. However, there is no question that the TSE Metals & Minerals index jumped considerably in mid-1995 compared to the other indices.

Performance (Trend Line) of the Toronto Metals & Minerals Index, and Selected Nonmining Stock Indices, 1992-95 (Exchange Rate Adjusted)

- In order to clarify things, we have run linear trend lines through the indices. Naturally, the steeper the trend line, the greater were the gains registered by that index over the time period.

- One will note that the Toronto Metals & Minerals index has out-performed both the FT Ordinary and the Nikkei Dow 225.

Performance of Selected Gold Stock Indices, 1992-95 (Exchange Rate Adjusted)

- This slide illustrates the performance of the TSE's Gold & Silver index, the Australian Gold index, and the South African Gold index.

- Note:

  · TSE Gold and Silver - up 80%;
  · Australian Gold - up 51%; and
  · South African Gold - down 15%.

- All of the gold indices have tended to move in tandem for the period 1992 to 1994. However, in 1995, the TSE's Gold & Silver index broke rank. Instead of falling throughout most of the year, the TSE's Gold & Silver index actually increased.

Performance (Trend Line) of Selected Gold Stock Indices, and the Nikkei Dow 225, 1992-95 (Exchange Rate Adjusted)

- We have run linear trend lines through the indices. The TSE Gold & Silver index has performed very well, and out-performed all of the other indices in 1995.

Hedging Operations - Major Canadian Gold Producers, 1989-94

- One of the reasons that the TSE's Gold & Silver index performed so well in the past is that Canadian gold producers, in addition to being low-cost producers (which I showed earlier), were financially astute in using the futures markets to enhance their bottom line.

- This slide shows the average spot price for gold for the period 1989 to 1995 and the average realized price for gold sales of a number of major Canadian gold producers.

- Canadian gold producers have been able to realize higher than spot market prices for their product.

Return on Capital Employed, 1992-94

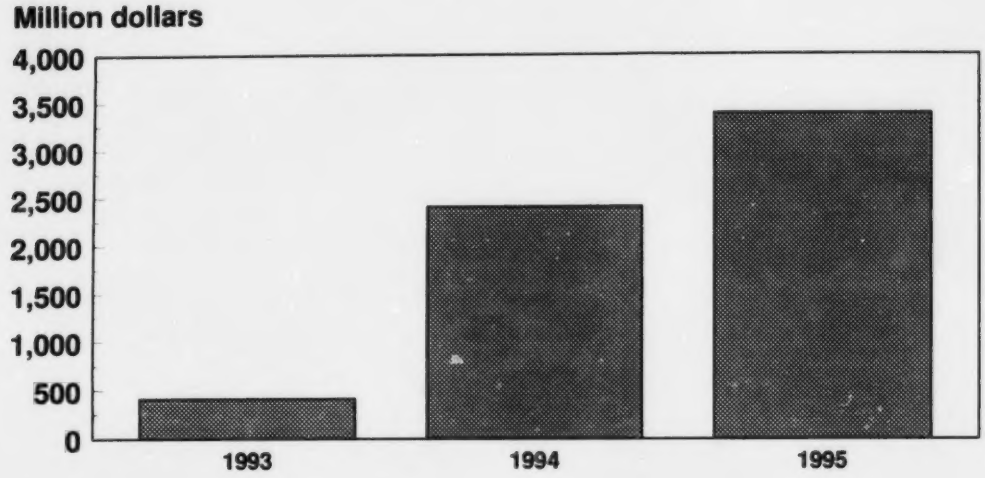
- This slide shows the return on capital employed in selected metal-producing sectors (gold, nickel, and lead-zinc) over the period 1992-94.

- As one can see, over these three years, Canada's gold, nickel and lead-zinc producers have consistently out-performed their competitors.

- If you recall the exchange rate graph that I showed you earlier, the external value of the Canadian dollar started to fall markedly near the end of 1991 to a more stable level, and these attractive Canadian rates of return reflect that.

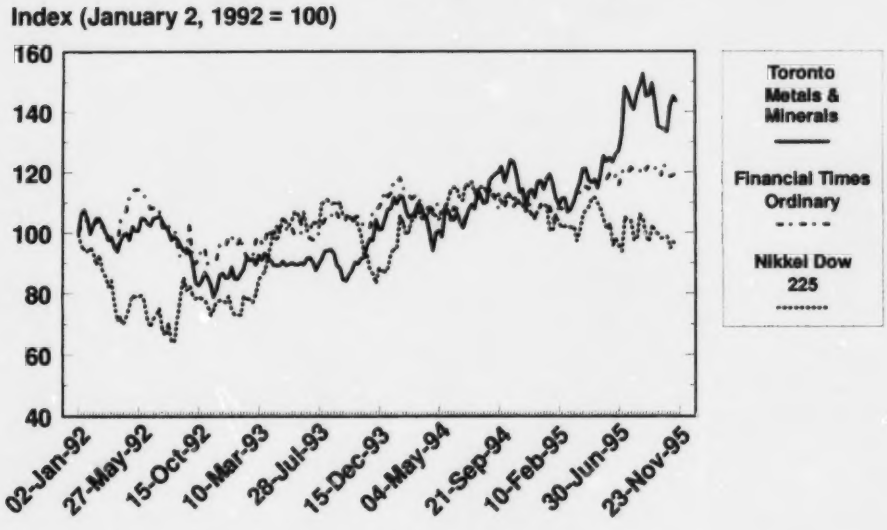
- I would now like to briefly outline policy initiatives recently undertaken by the Government of Canada.

Nonferrous Metals and Primary Metal Products Operating Profits*, 1993 - 95



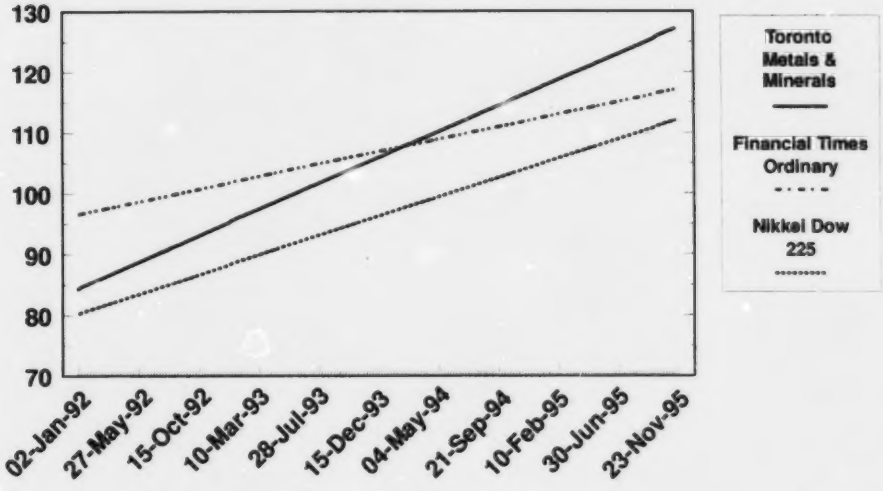
* Before exploration and development spending.
Source: Statistics Canada.

Performance of the Toronto Metals & Minerals, and Selected Nonmining Stock Indices 1992 - 95 (Exchange Rate Adjusted)



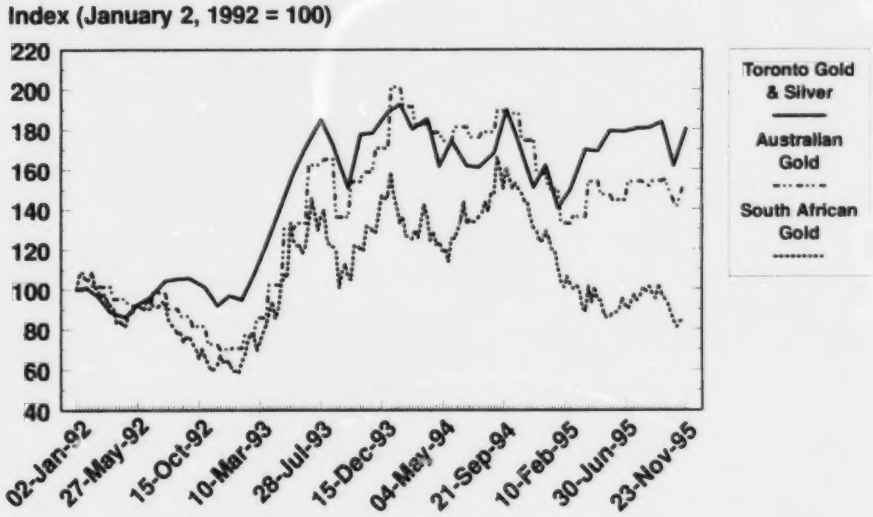
Sources: Mining Journal, Natural Resources Canada.

Performance (Trend Line) of the Toronto Metals & Minerals, and Selected Nonmining Stock Indices 1992 - 95 (Exchange Rate Adjusted)



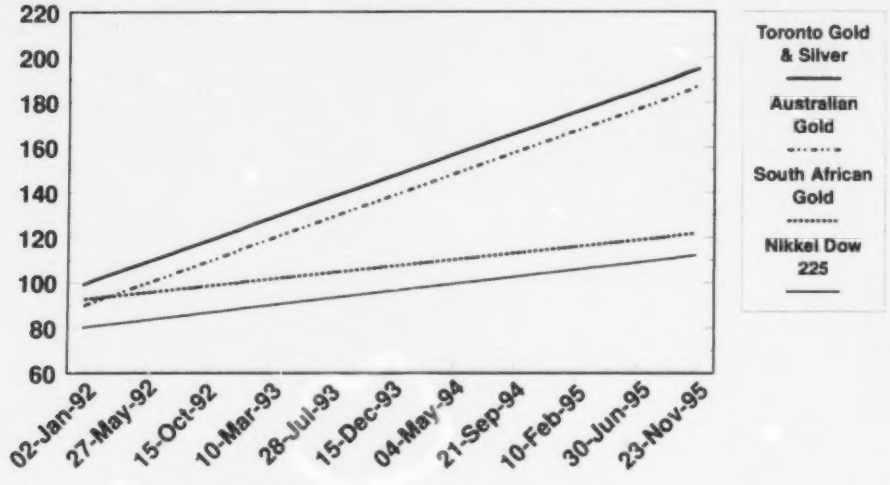
Note: Trend line was generated by regression analysis.
Sources: Mining Journal, Natural Resources Canada.

Performance of Selected Gold Stock Indices 1992 - 1995 (Exchange Rate Adjusted)



Sources: Mining Journal, Natural Resources Canada.

Performance (Trend Line) of Selected Gold Stock Indices and the Nikkei Dow 225
1992 - 1995 (Exchange Rate Adjusted)



Note: Trend line was generated through regression analysis.
Sources: Mining Journal, Natural Resources Canada.

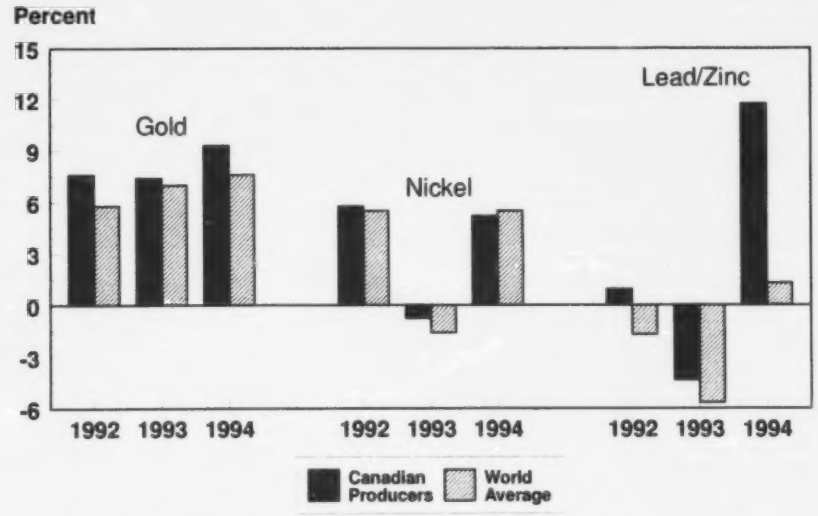
Hedging Operations - Major Canadian Gold Producers (1989 - 94)

- Average Spot Price for Gold (U.S.$) 369.5

- Average Realized Price for Gold (U.S.$)
  - Barrick Gold Corp. 424.0
  - Cambior Inc. 424.2
  - Hemlo Gold Mines Ltd. 387.2
  - Lac Minerals Ltd. (1989 - 93)* 394.4
  - Placer Dome Inc. 393.2

* Purchased by Barrick Gold Corp. in 1994.

Rate of Return on Capital Employed
1992 - 94



Sources: Resource Strategies Ltd., Natural Resources Canada.

B: POLICY AND REGULATORY ISSUES

PART VI: REGULATORY ASPECTS

Progress Report on Regulatory Reform

- The Government of Canada is involved in a number of initiatives to improve the country's regulatory system as it applies to mining.

- These initiatives came about after a number of stakeholder study groups, such as the Whitehorse Mining Initiative, had determined that establishing streamlined, simpler, clearer and more timely environmental assessment processes and regulations would significantly improve Canada's mineral investment climate.

- Undertakings such as *Building a More Innovative Economy* and the *Harmonization Initiative of the Canadian Council of Ministers of the Environment (CCME)* have so far led to the accomplishment of a lot of basic but necessary groundwork, and to some important realizations.

- Today, I will tell you about the progress we have made in recent years. We feel that Canada is on the right track to meet its objective of a regulatory regime that is efficient in achieving its environmental objectives while not burdensome on the industry's competitiveness.

- In regard to permitting by government of mining projects, what has to be borne in mind is that it has often been the "process" of permitting that has been the problem. Therefore, we have been re-evaluating the "permitting process."

The Whitehorse Mining Initiative

- The Whitehorse Mining Initiative (WMI) was a multi-stakeholder "consultation process" to help develop a new strategic vision for mining in Canada.

- Five sectors of society were represented:

  · the mining industry;
  · federal and provincial governments;
  · labour unions;
  · Aboriginal peoples; and
  · the environmental community.

- The *WMI Leadership Council Accord* was signed in September 1994. It includes 16 principles and 70 goals, and a statement of commitment to follow-up action by each stakeholder group.

- The *Accord* calls for:

  · streamlining and harmonizing regulatory regimes;
  · establishing an ecologically based system of protected areas; and
  · settling Aboriginal land claims expeditiously, efficiently and fairly.

- The federal Minister of Natural Resources has set up a ministerial advisory committee to assist with WMI implementation.

Groundwork for Practical and Durable Solutions

- In working to make improvements to the regulatory regime, the Government is looking for practical and durable solutions that will support the mining sector as well as achieve sustainable development.

- One of the primary vehicles for achieving regulatory reform is the *Building a More Innovative Economy (BAMIE)* initiative. The mining objectives of *BAMIE* are to:

  · facilitate improvements to the federal regulatory regime;
  · promote sustainable development;
  · provide for greater certainty; and
  · reduce delays and associated costs.

- *BAMIE* addresses a wide range of minerals and metals-related areas that include land-use decision-making and the administration of the federal *Fisheries Act*.

- *BAMIE* has set the foundation for making further improvements through the continuation of cooperative efforts amongst federal departments such as Environment, Fisheries and Oceans, Finance, and Natural Resources.

- NRCan, for instance, is working on a new federal Mineral and Metal Policy for Canada. Regulatory reform will feature prominently in the new policy.

- A recently released Issues Paper on *Sustainable Development and Minerals and Metals* will form the basis of an extensive round of consultations and negotiations with representatives of industry, labour, Aboriginal and environmental groups, as well as the provinces, on a number of issues including regulatory harmonization, pollution prevention, and social concerns.

- In addition, general progress has been made on the issue of harmonizing federal and provincial legislation. The Canadian Council of Ministers of the Environment (CCME) released a draft "Framework Agreement" on this topic in the fall of 1995.

- NRCan is also working with the Canadian Environmental Assessment Agency to improve the efficiency and effectiveness of the Panel Review process.

- The House of Commons Standing Committee on Natural Resources released an interim report in December 1995 that primarily focuses on efforts to "reform, streamline and harmonize the overall environmental regulatory regime facing the mining sector." The federal government values the work of the Committee on this crucial issue and is working to act on its recommendations. A government response to the interim report should be released by the fall of 1996.

Bilateral Harmonization Agreements

- Work done on all of the undertakings that I have just mentioned indicates clearly that the federal government is moving forward on a number of fronts in addressing the issue of regulatory reform.

- This is a multi-faceted and very complex issue. The Government is taking such a comprehensive approach in order to ensure that problems are resolved **permanently**.

- As I am sure you are aware, industry would much rather deal with a single entity than have to go through both provincial and federal environmental assessment processes.

- Harmonization agreements concerning environmental assessments have been reached between the federal government and the provinces of Alberta and Manitoba. This means that there are now single-window environmental assessment offices in these two provinces.

- As well, a draft agreement between the Province of British Columbia and the Government of Canada is currently being reviewed. This document includes defined time frames for the assessment process. It also takes some important steps towards meeting the goal of a "single, timely environmental assessment by an appropriate 'single' lead agency."

- We are hopeful that the concepts in the Canada-British Columbia agreement can be applied to other regions of Canada to facilitate the development of new mines. Negotiations between federal officials and their counterparts in Saskatchewan and Ontario are also progressing well.

- These bilateral agreements are very important for the mining industry. By including the notion of time frames and single-window environmental assessments in the regulatory regime, these agreements allow a quicker approval of mining projects.

- I would now likely to give you a brief overview of the federal process under the *Canadian Environmental Assessment Act.*

The Federal Process Under the *Canadian Environmental Assessment Act*

- The *Canadian Environmental Assessment Act (CEAA)* came into force on January 19, 1995. It replaced Canada's former federal *Environmental Assessment and Review Process (EARP).*

- This relatively new piece of legislation has four basic objectives:

  · to promote sustainable development;
  · to prevent environmental degradation;
  · to facilitate public participation; and
  · to provide access to information.

- A federal environmental assessment is required whenever the federal government:

  · is directly involved in the project (the proponent);
  · grants financial assistance to the project;
  · sells, leases or grants interest in land related to the project;
  · is involved because of transboundary issues; and
  · has regulatory responsibilities.
    - Department of Fisheries and Oceans - *Fisheries Act*,
    - Heritage Canada - *National Parks Act*,
    - Transport Canada - *Navigable Waters Protection Act*,
    - Environment Canada - *Migratory Birds Act*,
    - Indian and Northern Affairs Canada - *Yukon Waters Act* and the *Northwest Territories Waters Act*, and
    - Natural Resources Canada - *Explosives Act.*

- Once a project "triggers" the *CEAA* process, a lead department or "Responsible Authority" is established to coordinate the federal government's environmental assessment process. (As mentioned earlier, bilateral and multilateral discussions are under way between the federal government and the provinces with the aim of establishing joint federal-provincial environmental assessment processes in each province/territory - with one lead agency and one assessment per project.)

- Under the *CEAA*, four assessment tracks are outlined:

Screening/Class Screening

- About 95% of all projects which trigger an environmental assessment fall into this category. These projects are by definition "any project which triggers a review but does not necessitate a comprehensive study or panel review."

- Activities that are commonly done, and which have been determined in the past to have no significant environmental impact (with mitigation), may undergo a simple class screening process (e.g., routine geoscience work). A model environmental screening report exists that will require minimal alterations prior to submission for approval.

- Given the uniqueness and impact of mine sites and operations, this level of environmental review is not likely to apply to a mining project.

Comprehensive Study

- A comprehensive study is required for projects, regardless of their location, which appear on the "comprehensive study list." The "comprehensive study list" outlines activities that may have an adverse impact on the environment.

- Mining is on this list under the heading "Minerals and Mineral Processing." The proposed construction (depending upon production capacity), expansion (depending upon size of increase), decommissioning or abandonment of a mine or metal mill requires the preparation a comprehensive study.

- While a screening report could be as small as a two-page assessment, a comprehensive study is a rigorous analysis that incorporates public notification and a comment period. The "Responsible Authority" prepares a report, seeking the necessary information from the project proponent and other government departments and, once completed, submits the document to the Minister of the Environment for a decision. A comprehensive study can usually be done in 45-60 days.

Panel Review or Mediation

- If a project is likely to have a significant adverse effect on the environment, or if there is significant public concern, a project will likely be required to undergo a panel review. Less than 5% of all projects undergo a panel review.

- Under the panel review process, the federal Minister of the Environment, in consultation with other departments, appoints a panel and establishes the terms of reference for a public review. Information gathered by the panel, through public hearings and written submissions from interested parties, is made available to the public and is used to develop a report which is submitted to Cabinet for final decision.

- Mediation is used when the comprehensive review process has not adequately settled all of the contentious issues surrounding a project. A mediator is appointed and consultations are undertaken. A mediator's report is then submitted to Cabinet, and a decision is made.

- While the process may sound complicated, the Government of Canada is making every effort to streamline and harmonize the federal process with the provincial processes.

- Finally, the message I want to leave you with on the issue of regulatory reform is that there is concrete evidence of progress and that the Government of Canada remains committed to continuing its overhaul of the regulatory system.

Progress Report on Regulatory Reform

- Regulatory Reform Fully Under Way
- Groundwork for Practical and Durable Solutions
- Concrete Results with Immediate Benefits

The Whitehorse Mining Initiative

- A Multi-Stakeholder Consensus Building Process
- Objective:
  - to move toward a socially, economically, and environmentally sustainable and prosperous mineral industry, but underpinned by political and community consensus

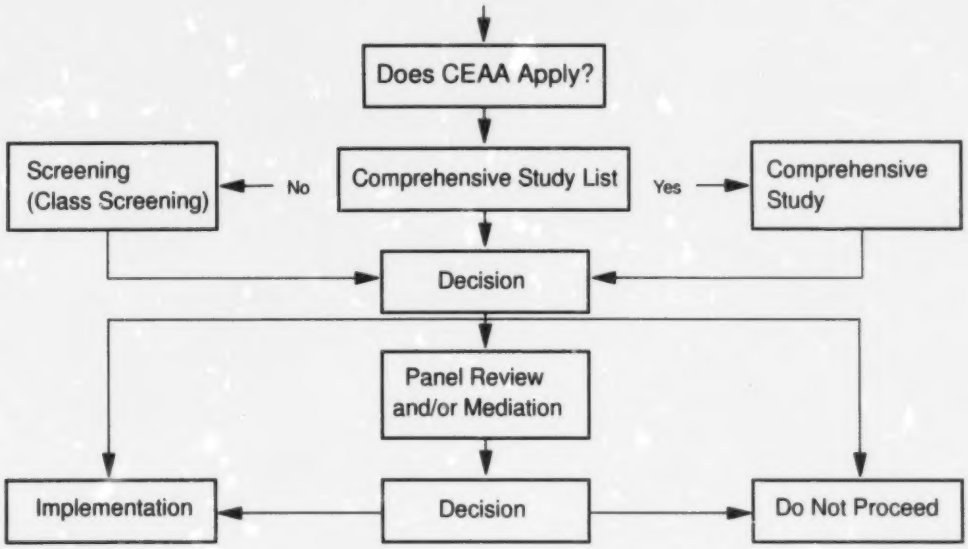
Groundwork for Practical and Durable Solutions

- Building a More Innovative Economy
- Federal Mineral and Metal Policy Development
- Harmonization Initiative of the Canadian Council of Ministers of the Environment
- House of Commons Standing Committee on Natural Resources

Bilateral Harmonization Agreements

- Alberta
- Manitoba
- British Columbia (draft)
- Saskatchewan (in progress)
- Ontario (in progress)

The Federal Process under the *Canadian Environmental Assessment Act*



PART VII: TAXATION ASPECTS

This section was a component of seminars in spring 1995, and was first printed in Canada's Mining Industry: Current Situation (February/March 1995), Natural Resources Canada. Because of audience interest, it was repeated in seminars in spring 1996.

Sharing of Resource Taxation

- Taxes are an important and unavoidable component of the investment climate. In this presentation, analysis of taxation uses examples of base metals and gold, and therefore does not address potash and uranium mining, even though these are important in Canada.

- Canada's tax regime is relatively stable, albeit complex, with different tax instruments being used by three levels of government: federal, provincial and territorial, and municipal.

- In practice, most tax systems in the world fit somewhere in between two opposing types or structures:

  · one that spreads depreciation charges and other write-offs over the life of the project and therefore entails tax payments as soon as commercial production starts; and

  · the other that allows fast write-offs and other front-loaded investment incentives, thereby allowing for a relatively long initial tax-free period.

- As you are probably aware, Canada's is relatively close to the later, the front-loaded type.

- The timing of tax payments is paramount to understanding how these tax structures differentially affect project cash flows and returns. There is a value to the mining company (and a corresponding cost to government) of having tax payments deferred. Front-loaded tax systems such as Canada's offset this benefit with a relatively higher tax rate.

- Criticisms that arise about the Canadian corporate income tax system usually centre around the high tax rate that applies in those years after all capital costs have been recovered. What is being overlooked in this criticism is the low tax burden that the project has enjoyed in its earlier years of operations.

International Tax Burdens - Methods of Evaluation

- The comparison of profit-based taxes and royalties among competing jurisdictions is very complex, given the diverse nature of tax regimes.

- There are three approaches commonly used to compare taxation among different countries:

  · the statutory tax rate;
  · the "marginal tax rate"; and
  · the "average effective tax rate."

Comparison of Marginal Tax Rates

- Statutory tax rates are the actual tax rates embedded in the tax acts of the various jurisdictions. Although a comparison of statutory tax rates is useful, most tax analysts do not rely solely on this analysis to evaluate the tax competitiveness of a country.

- The reason is that there are numerous corrections or adjustments which need to be applied to statutory rates to take into account the effect of surtaxes and automatic deductions. In Canada, for example, the 25% resource allowance effectively reduces the federal corporate income tax rate from 28% to 21%. This rate is increased to 21.6% when surtaxes are applied.

- Thus, the comparison of marginal tax rates, which is shown here, is what a large number of people are using to compare countries.

- The use of marginal tax rates is also the basis for the persistence in thinking that the Canadian corporate income tax system is more onerous than it really is.

Federal/Provincial (Ontario) Tax Incentives

- As a reminder, there are a large number of incentives which need to be taken into account to evaluate the effective tax burden of a typical Canadian jurisdiction, in this case Ontario. The marginal tax rate approach (above) only considered one of them, the resource allowance.

- In the next two slides, we are using Ontario as an example to illustrate the effect of accelerated depreciation and other tax features on the timing of tax payments.

Impact of Incentives on the Tax Base - 25 Percent Internal Rate of Return (Ontario)

- What you are seeing here is how the Canadian federal income tax system acts to reduce the tax base upon which the marginal tax rates are applied. The shaded areas represent the portion of net revenue which is offset by depreciation, exploration and development write-offs, and other deductions. The white area represents taxable income.

- In this case, we have chosen a profitable operation with a pre-tax internal rate of return (IRR) of 25%.

- For the first three years of production, no taxes will be paid in Ontario. In the fourth year, a very small portion of the tax base is subject to tax. This situation is made possible by the existence of generous and flexible depreciation and write-off rules that allow the deferral of any tax payment until capital costs are fully recovered.

- It is important to notice here that these features also extend to provincial income taxes, as well as mining tax regimes. In Canada, provincial mining tax regimes are based on profits, and many also feature tax holidays for new mines, and automatic deductions which further reduce the tax base.

Impact of Incentives on the Tax Base - 10 Percent Internal Rate of Return (Ontario)

- There are circumstances which can make a promising project turn out less profitable than anticipated. The Canadian tax system ensures that these circumstances are not aggravated by tax payments when the project is still in its capital recovery period and faces fixed interest charges.

- This chart shows the impact of income tax incentives on the taxable income of a mine with a 10% IRR (before tax).

- This particular project in Ontario is sheltered from corporate income tax for the first seven years of production.

Impact of Incentives on the Tax Base - 25 Percent Internal Rate of Return (Indonesia)

- We have taken the case of Indonesia for comparative purposes.

- Indonesia's tax rules, as they applied under the fifth generation COWs (Contract of Work), are at the basis of the tax calculations which are shown on this graph. Indonesia is a good example of an income tax regime that tries to match capital costs with revenues.

- If a 25% IRR (before tax) is assumed, a mine will start paying taxes in Indonesia in the very first year of production. You will recall that the corresponding Canadian mine started to pay taxes only in its fourth year.

Impact of Incentives on the Tax Base - 10 Percent Internal Rate of Return (Indonesia)

- This slide shows that with a 10% IRR (before tax), a project would start to pay taxes in its fifth year of production in Indonesia, instead of in the seventh year as in the case of Canada.

- What the last four charts have shown is that there are very significant differences in the timing of tax payments between a Canada-like regime and an Indonesia-like one. Canada offers a tax-free period that is two to three years longer than in Indonesia. On the other hand, once the Canadian project starts to pay tax, it faces a marginal tax rate that is significantly higher.

- So, an interesting question is whether companies would prefer to have low marginal tax rates but no upfront incentives, or higher marginal tax rates with fast write-offs and other upfront incentives.

- We would venture to say that it depends on how, in the two situations, the total tax burden compares, on a net present value basis, over the production life of the project. Such an evaluation is the subject of the next three slides.

Average Effective Tax Rates for Base-Metal Operations (25% Internal Rate of Return)

- Here, we have the comparative results for a 25% rate of return base-metal project for 21 jurisdictions. By the way, these results come from our calculations of 1994, and there have been some changes since. We intend to re-calculate this table, but it is a mammoth task.

- The effective tax rates of countries like Indonesia or Chile that have no upfront incentives show very little differences from marginal tax rates. In contrast, Canadian effective tax rates are 10 to 15 percentage points lower than corresponding marginal tax rates.

- Even though the effective tax rates of some Canadian jurisdictions are rather on the high side, differences with main competitors are much less pronounced than suggested by a review of marginal tax rates.

Average Effective Tax Rates for Base-Metal Operations (10% Internal Rate of Return)

- In the case of the 10% rate of return base-metal project, the effect of timing is much more pronounced. This is because capital cost write-offs represent a larger proportion of cash flow than is the case for the more profitable project.

- At this level of profitability, Canadian tax rates become among the most competitive by virtue of the very long tax-free period provided.

Average Effective Tax Rates for Gold Operations (10% Internal Rate of Return)

- I would like to briefly turn my attention to gold. In contrast to Canada, some foreign jurisdictions tax gold projects differently than base metals. In this slide, Canadian jurisdictions are compared with major gold-producing countries.

- The results in this analysis are also generally quite favourable for Canada.

Conclusion

- In closing this section on taxes, I should issue some caveats. This analysis does not cover non-profit-based taxes (i.e., capital taxes, sales taxes, fuel taxes or payroll and employment-related levies), withholding taxes or mine reclamation requirements. As a result, we have not addressed the issue of the total tax burden imposed on a mine by a jurisdiction.

- As I have tried to show (quoting statutory, marginal and average effective tax rates), one cannot make simple and unambiguous statements about whether a company in a certain jurisdiction is subject to a "high" or "low" level of taxation in relation to its competitors. The actual tax burden of a mine in a given jurisdiction (measured by the proportion of profit taken as taxes by governments) can vary greatly year-to-year due to a number of factors including:

  · the age of the mine (e.g., have front-end deductions been exhausted or not?); and
  · profitability (did the mine turn out to be highly profitable or not?), etc.

- It is foolhardy for anyone to make blanket statements about tax burdens. It is extremely important that people try to understand the complexities of taxation; hopefully, this analysis has provided some insights.

- Before leaving the issue of taxation, I would like to update you on recent tax developments (1994-95) in Canada.

A Canadian Tax Update

- These remarks will focus on four areas:

  · a provincial budget roundup;
  · the current review of Canada's mining regulations which apply in the North;
  · the possible amendment of Newfoundland's *Mining and Minerals Rights Tax Act*; and
  · Federal Budget, March 6, 1996.

Provincial Budget Roundup

- In 1994 and 1995, a number of positive tax changes were introduced for the mining industry by a number of Canadian jurisdictions.

- The 1994 Manitoba Budget introduced a "7% mining investment credit," and a doubling of the processing allowance rate to 20%.

- In its 1995 Budget, Manitoba introduced another incentive for mining by exempting mining drill bits and explosives from sales tax.

- In its 1994 Budget, the British Columbian government introduced changes that will provide approximately $100 million to the mining industry up to the year 2000:

  · The mining tax rates applicable to coal mining in British Columbia have been reduced. The 7.5% tax on net current proceeds has been reduced to 2%. The 17.5% tax on net revenue has been reduced to 13%; and

  · Effective January 1, 1995 to December 1999, capital cost allowances applicable to new mines and major expansions in that province will be increased by one-third (to 133%) for British Columbia *Mineral Tax Act* purposes. This significant benefit will boost a number of new projects that will come on stream in the next few years.

- Nova Scotia introduced sales tax exemptions for exploration and mining equipment, effective April 12, 1995.

- In its 1995 Budget, Quebec introduced a mining tax holiday of up to ten years for new mines operating north of the 55th parallel; earnings from a mine-site reclamation trust fund are now exempt from mining tax.

- Technical changes were made to harmonize the Quebec sales tax with the federal GST. The capital tax rate, though, was increased from .37% to .43%.

Review of Canada's Mining Regulations - North of 60°

- In the February 1995 federal budget, the Minister of Finance announced a comprehensive review of the northern natural resource management legislation "... to increase revenues and ensure a fair return to the Crown."

- In addition, changes to the mining royalty regime must be made prior to the start of diamond mining to provide a measure of fiscal certainty to diamond mine developers. The initial phase of the review is now being completed and a discussion paper will be released in May. Extensive consultations on the discussion paper with all interested stakeholders will be undertaken before the changes are finalized. The revised royalty regime will continue to apply to all minerals including diamonds.

- Throughout the review, the Government will take great care to ensure that the Northwest Territories will retain its competitive position with respect to the amount of royalties that are collected and, therefore, its attractiveness as a target for mineral investment capital.

Possible Amendment of Newfoundland's "Mining and Mineral Rights Tax Act"

- On December 14, 1995, proposed amendments to the Newfoundland mining tax regime were tabled. However, the proposed legislation (Bill 43) died on the order paper with the Newfoundland election call. Thus, interested parties will have the opportunity to review all aspects of the proposals and to provide their views before the new government reintroduces these or modified proposals.

- There were comments that the proposed revisions would create the highest tax levy on mining operation in Canada. In all fairness, this is not entirely accurate. In fact, if the proposed legislation were to be adopted, Newfoundland would continue to have one of the lowest mining tax regimes in Canada, except in the unique circumstances of very rich mines.

- The reason is that the proposed adjustments would have ensured that tax incentives were maintained, and even enhanced, for **existing** producers and for new smaller and lower profitability mines. Although there was also mention of a new non-renewable resource development tax, that tax would have applied only to projects with gross revenues greater than $100 million a year and it would not be paid until a developer had recovered its total investment in full.

Federal Budget, 1996

- For the past three years, the federal government has been engaged in an all-out effort to restore order to its finances. The 1996 Federal Budget was one of optimism and staying the course on deficit reduction.

- The Budget addressed three issues of concern for the mining industry:

  · the resource allowance was tightened to remove administrative loopholes;

  · flow-through shares were rendered more efficient and better-targeted to exploration and development activities by allowing exploration expenditures up to 12 months after the tax deduction; and

  · the accelerated capital cost allowance (ACCA) was made available to modernization or environmental protection programs, instead of being restricted to new mines and major expansion programs.

- Industry's input was sought on all of these measures. For that reason, they are viewed favourably by the mineral exploration and mining industry. In contemplating these changes, the Government's overriding priority was to maintain the attractiveness of Canada's mineral investment climate.

Sharing of Resource Taxation

- **Federal**
  - **Income Tax**
  - **Large Corporation (Capital) Tax**
  - **Excise Taxes on Fuels**
  - **Goods and Services Tax**

- **Provincial / Territorial**
  - **Income Tax**
  - **Mining Taxes / Royalties**
  - **Excise Taxes on Fuels**
  - **Retail Sales Tax**

- **Local Government Levies**
  - **Property Taxes**

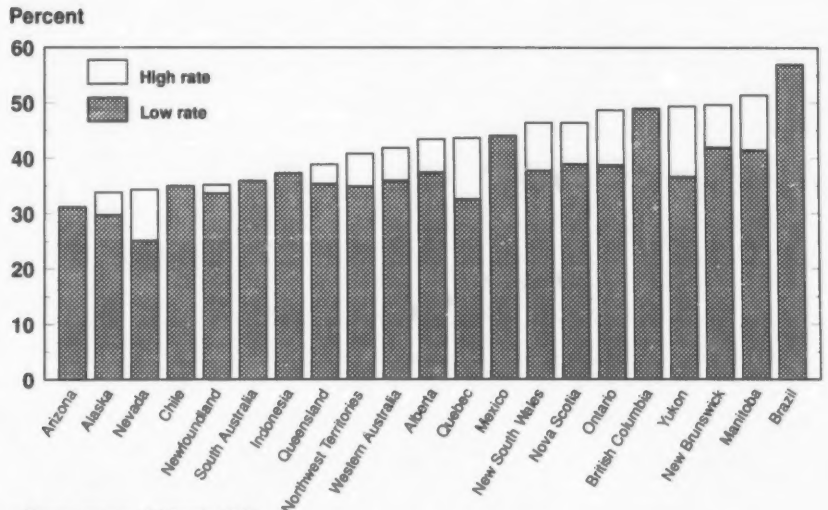
International Tax Burdens: Methods of Evaluation

- Statutory Tax Rates
  - Income Taxes
  - Mining Taxes / royalties

- Marginal Tax Rates
  - Adjusted for Permanent Deductions

- Average Effective Tax Rates
  - Time Value of Front-End Incentives (accelerated write-offs / super deductions / etc.)

Comparison of Marginal Tax Rates
(Combined Income Tax and Royalty Rates)



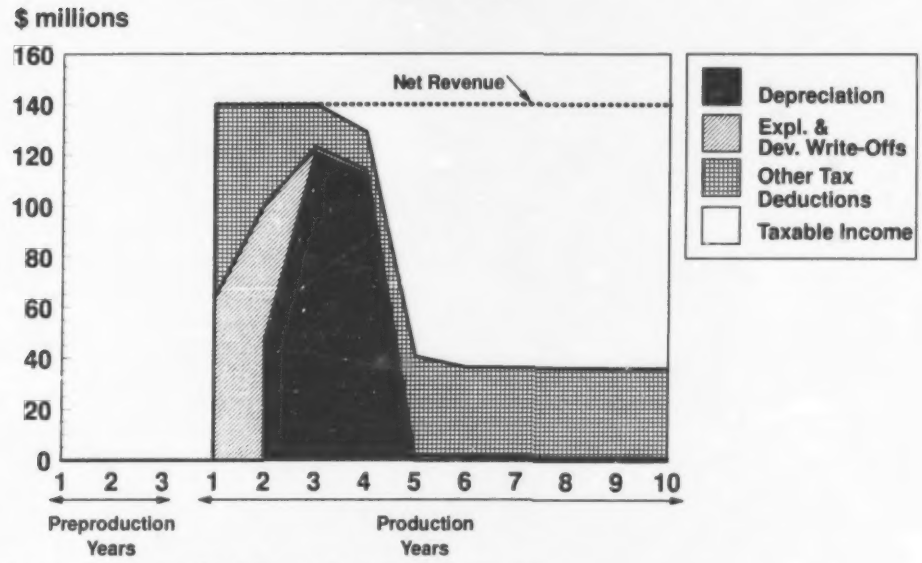
Rates are as of March 1994.
Source: Minerals and Metals Sector, Natural Resources Canada.

Federal / Provincial (Ontario) Tax Incentives

- Federal / Provincial Income Taxes
  - Resource Allowance
  - 100% Write-Off of Exploration and Preproduction Development Expenditures
  - Accelerated Depreciation
  - Flow-Through Shares
  - Optional Deduction Rules and Flexibility

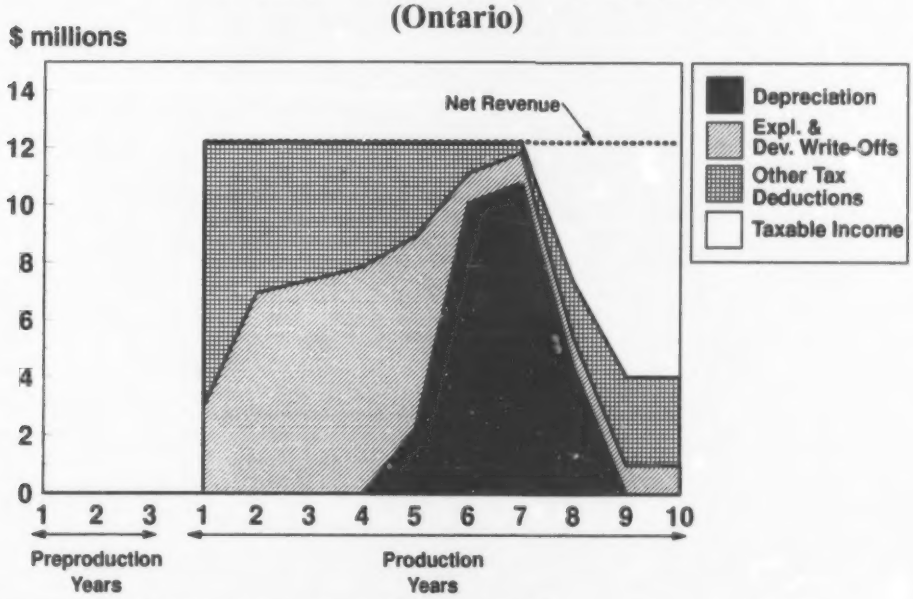
- Provincial (Ontario) Mining Tax
  - Processing Allowance
  - $10 million Tax Holiday

Impact of Incentives on the Tax Base
25 Percent Internal Rate of Return
(Ontario)



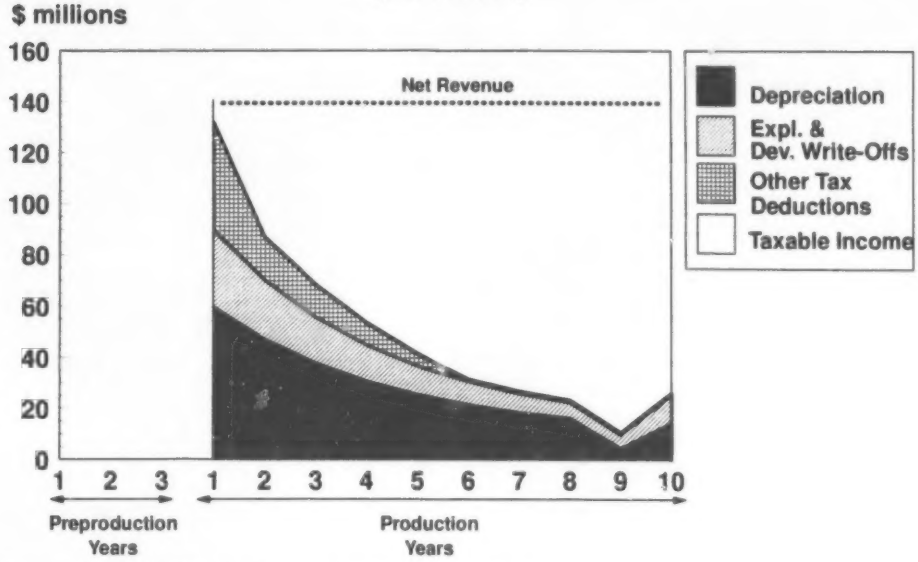
Source: Minerals and Metals Sector, Natural Resources Canada.

Impact of Incentives on the Federal Income Tax Base
10 Percent Internal Rate of Return
(Ontario)



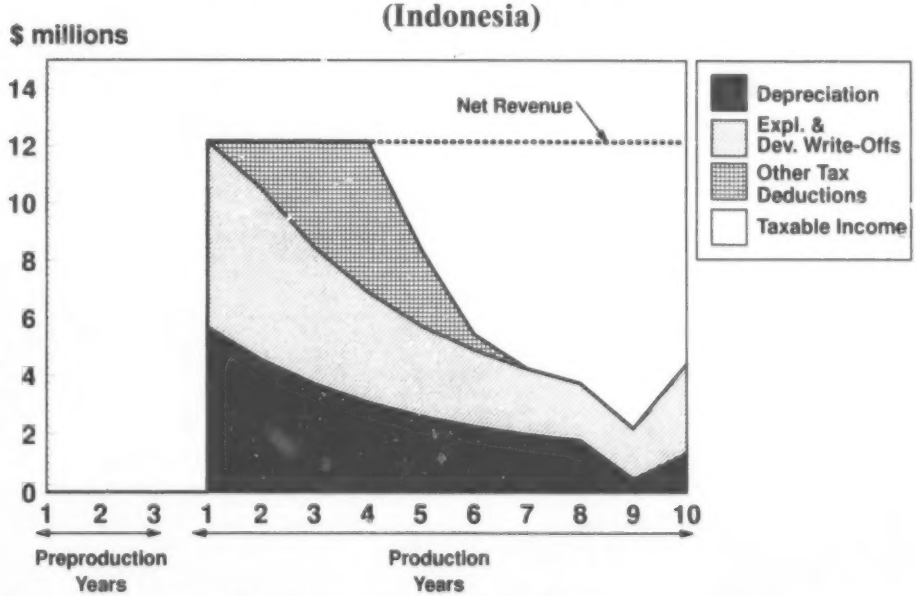
Source: Minerals and Metals Sector, Natural Resources Canada.

Impact of Incentives on the Tax Base
25 Percent Internal Rate of Return
(Indonesia)



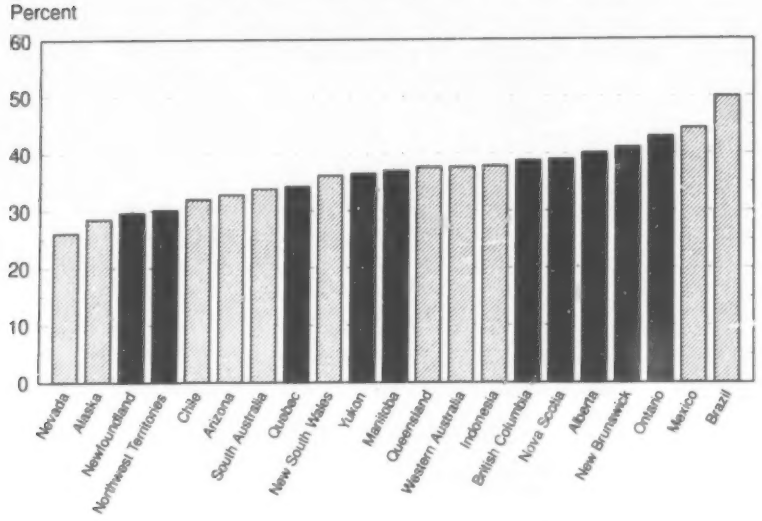
Source: Minerals and Metals Sector, Natural Resources Canada.

Impact of Incentives on the Tax Base
10 Percent Internal Rate of Return
(Indonesia)



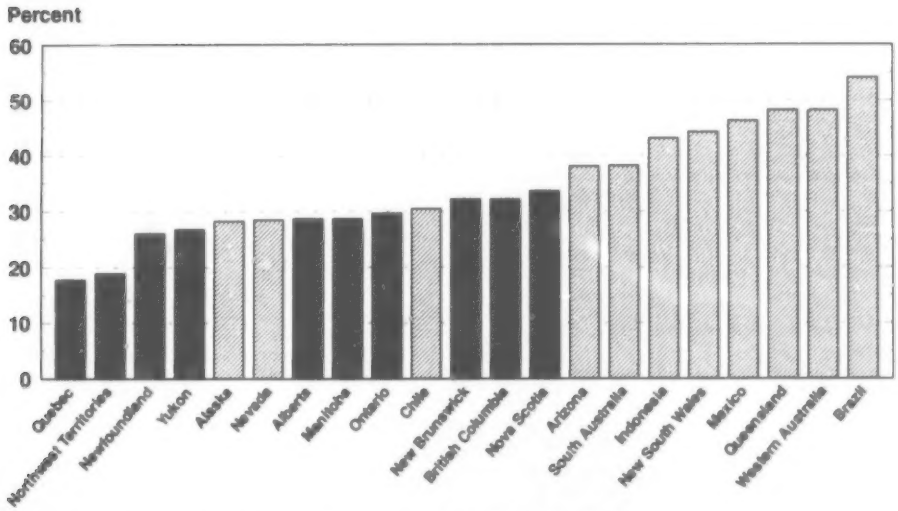
Source: Minerals and Metals Sector, Natural Resources Canada.

Average Effective Tax Rates for Base-Metal Operations (25% Internal Rate of Return)



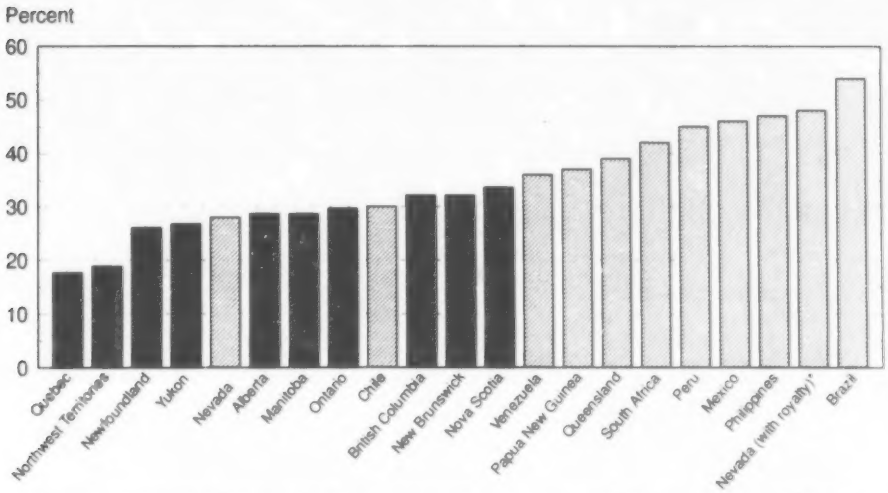
25% pre-tax internal rate of return, mine life of 10 years and discount rate of 7.5%.
Calculations are with respect to income taxes and mining taxes/royalties only. Revised for tax changes as of April 1994.
Source: Minerals and Metals Sector, Natural Resources Canada.

Average Effective Tax Rates For Base-Metal Operations (10% Internal Rate of Return)



10% pre-tax internal rate of return, mine life of 10 years and discount rate of 7.5%.
Calculations are with respect to income taxes and mining taxes/royalties only. Revised for tax changes as of April 1994.
Source: Minerals and Metals Sector, Natural Resources Canada.

Average Effective Tax Rates for Gold Operations
(10% Internal Rate of Return)



10% pre-tax internal rate of return, mine life of 10 years and discount rate of 7.5%. Calculations are with respect to income taxes and mining taxes/royalties only. *U.S. (Nevada) royalty assumption: 5% of net smelter returns. Revised for tax changes as of April 1994.
Source: Minerals and Metals Sector, Natural Resources Canada.

A Canadian Tax Update

- Provincial Budget Roundup
- Review of Canada's Mining Regulations - North of 60°
- Possible Amendment of Newfoundland's *Mining and Minerals Rights Tax Act*
- Federal Budget, 1996

C: PROSPECTS

PART VIII: CANADA'S GEOLOGICAL POTENTIAL

Selected Diamond Exploration Areas in Canada

- I would now like to briefly touch on two major developments in Canada that reflect Canada's tremendous geological potential: diamonds and Voisey's Bay.

- While it has been known for some time that Canada has the potential for kimberlite-hosted diamond deposits, the discovery of diamonds in economically mineable quantities is quite recent.

- The first diamond discovered in North America was taken from glacial gravels in 1863. More than 90 additional diamonds, thought to have been carried south by glaciers from Canada, were found over the years in the United States and in Canada.

- Diamonds occur in carrot-shaped intrusions of kimberlite rock. Kimberlite is a relatively soft rock, easily cut down by glaciers and buried by glacial gravels.

- Airborne and ground magnetometers make it possible to locate kimberlite through a considerable thickness of glacial drift. Although glacial drift represents an obstacle to diamond exploration, it also provides an opportunity. Certain minerals occur only in kimberlite. Sampling of glacial gravels for concentrations of such minerals can trace them back in the direction from which the glaciers had come to the source kimberlite intrusion.

- Exploration for diamonds in Canada began in earnest in 1960. More than 30 kimberlite intrusions were found over the next three decades, some of them containing tiny diamonds. It was not until 1991 that the first kimberlite with economic potential was discovered near Lac de Gras in the Northwest Territories.

- More than 600 mineral properties are being explored for diamonds in Canada. This slide indicates the provincial distribution of these properties.

- Some of the many widely spread Canadian diamond exploration areas are shown on this map. Since 1988, more than $400 million has been spent on diamond exploration in Canada, one-third of that amount in 1995 alone. The map shows what currently appear to be Canada's four most significant diamond projects: Lac de Gras, Diavik, Ranch Lake, and the AK-5034 kimberlite. Let me tell you briefly about each of these:

Grades of Selected Canadian Diamond Deposits

Lac De Gras

- At Lac de Gras, a total of 57 kimberlite intrusions have been identified, 42 of which contain diamonds. The Australian company Broken Hill Proprietary proposes to mine five of these kimberlites over a 25-30-year period, with initial production planned for 1997 or 1998. Annual output of diamonds from this project is expected to be about $500 million. These are among the world's highest value per tonne kimberlites.

Diavik

- On the Diavik property, 41 kimberlites have been discovered, 13 of which are diamond-bearing. Four of them are rich in diamonds. A preliminary mini-bulk sample from the A-154 South kimberlite yielded $262 of diamonds per tonne. A 3000 tonne bulk sample is now being taken. If the results of this bulk sample confirm the results of the mini-bulk sample, A-154 South will be one of the world's highest grade diamond deposits. On the Diavak property, the A-154 North and A-418 kimberlites are also yielding encouraging results.

AK-5034 Kimberlite

- A 1.7-tonne sample from the AK-5034 kimberlite yielded an exceptional 8.4 carats/tonne. A 100-tonne mini-bulk sample currently being taken should provide a more accurate idea of the diamond content.

Ranch Lake

- A 1.2-tonne sample from the Ranch Lake kimberlite, JD/OD-1, has yielded another high diamond content, 5.32 carats of diamonds per tonne. A 100-tonne mini-bulk sample is being taken to confirm these results and to see whether a large bulk sample is warranted.

- Canada is still in the early days of diamond exploration and discovery. Most of the more than 600 properties currently being explored for diamonds are still in early stages of the exploration process. Many additional exploration possibilities have not yet even been thought of. It would be surprising indeed if additional mineable diamond deposits are not discovered in Canada over the next few years and over the next few decades. Clearly, diamond exploration has a promising future in Canada.

Value of World Diamond Mines and Canadian Deposits

- This slide compares the U.S. dollar per tonne recoverable diamond content of Canada's currently most promising diamond-bearing kimberlites with per tonne diamond values being recovered from producing diamond mines. These Canadian deposits rank favourably with current mines.

Exploration for Diamonds in Canada, Regional Distribution of Properties

- The Lac de Gras discovery led to unprecedented mineral claim staking in Canada, with more than 400 000 km^2 staked in Alberta (more than half the area of the province). Another 240 000 km^2 were staked in the Northwest Territories, most of it for diamonds. There was some staking for diamonds in other provinces as well. Never in the history of Canadian mineral exploration and mining had such an enormous area been taken up by mineral claims at one time.

- As one can see from this chart, the Northwest Territories has become the major focus for diamond exploration in Canada.

- In 1990, exploration expenditures related to diamonds just exceeded $5.1 million. In 1995, expenditures related to diamond exploration are forecast be around $133.4 million.

- We expect major diamond exploration expenditures to continue in Canada for the foreseeable future. It would be surprising, indeed, if Canada does not have several diamond mining operations in production within the next five to ten years.

Voisey's Bay Nickel-Copper-Cobalt Discovery, Fall 1994

- In 1994, a world-class nickel-copper-cobalt deposit was discovered in Labrador by Diamond Fields Resources. The discovery was made in an area of Canada that had never been seriously explored for nickel.

- Reserves of the discovery zone currently stand at 32 million tonnes grading 2.83% nickel, 1.68% copper and 0.12 % cobalt. This tonnage is mineable by open pit. Additional tonnage has been found in two other zones, mineable from underground. It is too early to calculate tonnage and grade, but the company has recently stated that the currently known zones appear to contain about 100 million tonnes of ore-grade material. This tonnage suggests that the Voisey's Bay deposit has roughly the same metal content as the largest few of the mines at Sudbury, Ontario, or as the Thompson mine in Manitoba, which until now have been Canada's all-time largest nickel mines.

- Some predict that the mine expected at Voisey's Bay will have the world's lowest nickel production costs, and that co-product and by-product credits may be sufficient to cover total production costs. That means that nickel production costs could actually be negative.

- Initial annual nickel production capacity is expected to be at least 60 000 tonnes, with production likely to commence by about the year 2000.

- Canada's other two nickel production districts, at Sudbury and Thompson, each have several separate nickel orebodies. A considerable number of companies are exploring for additional deposits in the vicinity of Voisey's Bay.

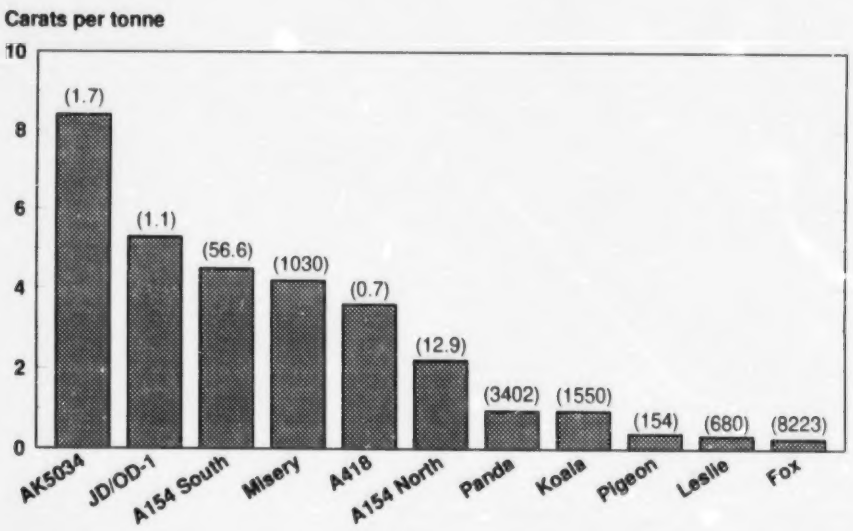
Mineral Deposits Undergoing Active Appraisal in Canada as at January 1 of Each Year

- While Lac de Gras' diamonds and Voisey's Bay's nickel have both generated considerable worldwide interest in their respective areas, exploration activities are under way right across Canada.

- At the beginning of 1996, there were over 140 metal deposits for which companies were reporting significant results, about the same number of deposits as at the beginning of 1995.

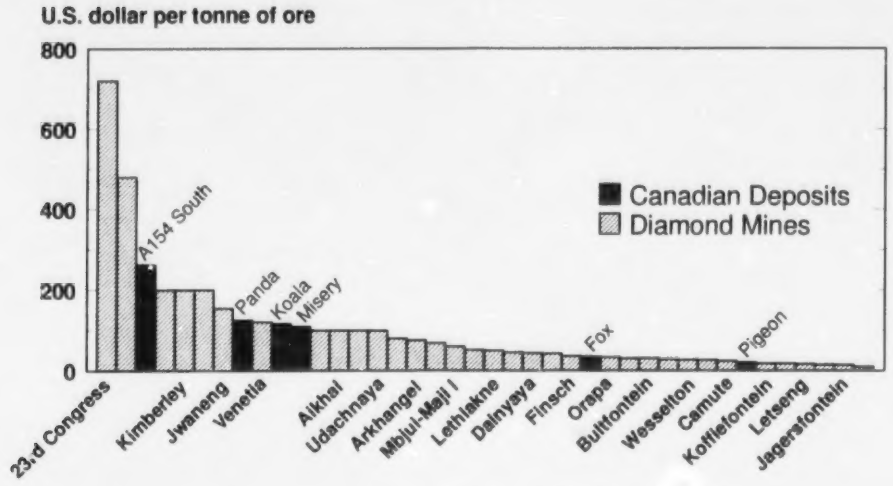
- A detailed listing of these deposits may be found in Appendix B of this document.

Grades of Selected Canadian Diamond Deposits



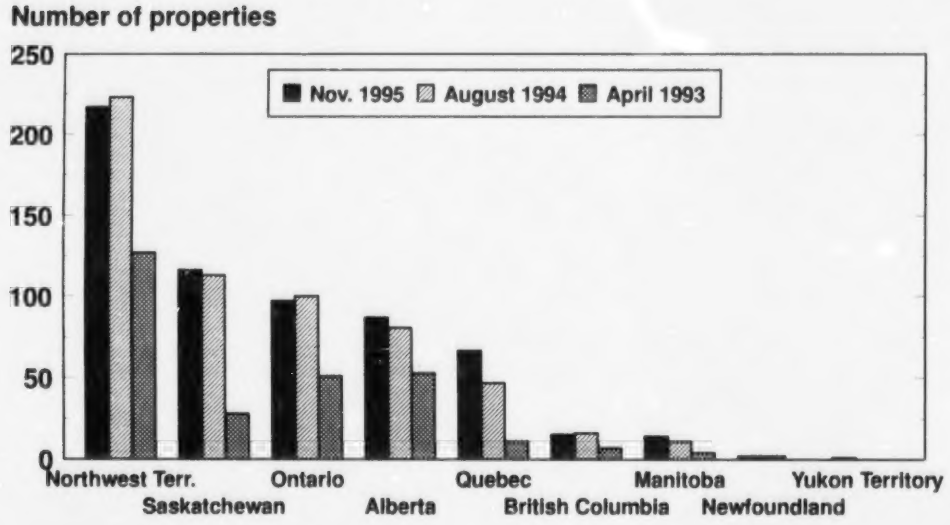
Source: Minerals and Metals Sector, Natural Resources Canada.

Value of World Diamond Mines and Canadian Deposits

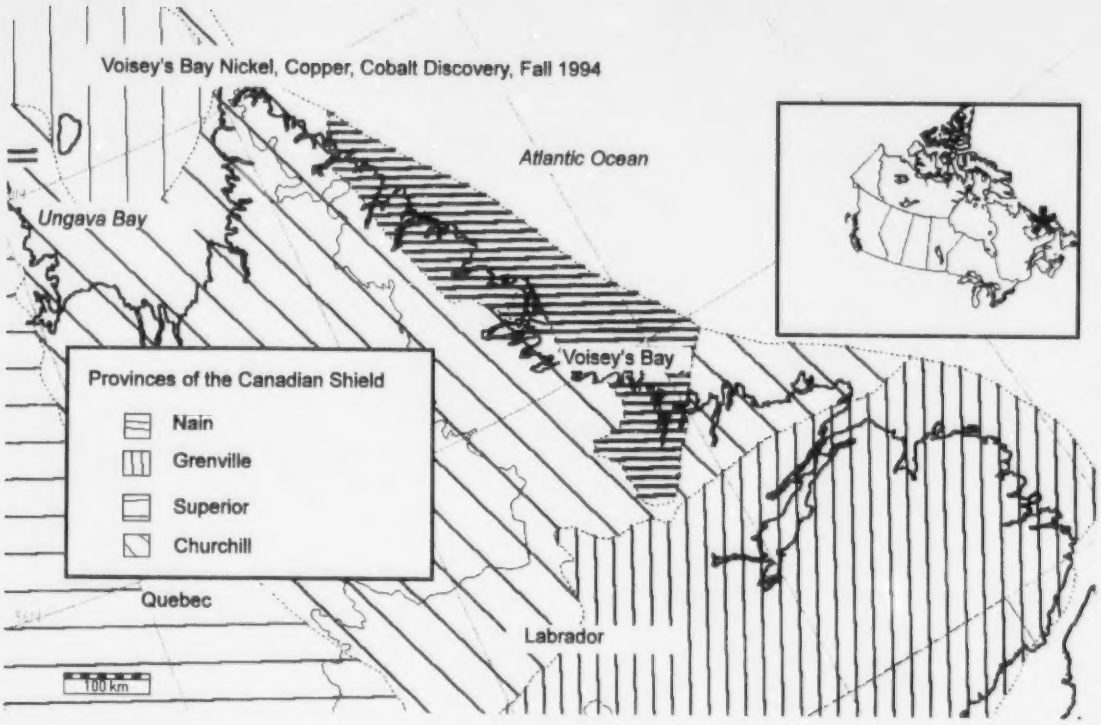


Sources: Adapted from A. Janse, "The Aims and Economic Parameters of Diamond Exploration"; Natural Resources Canada.

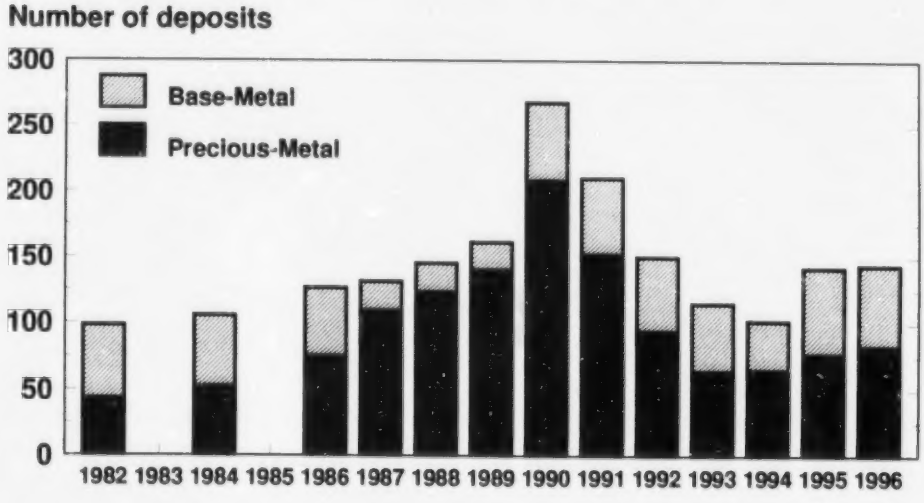
Exploration for Diamonds in Canada
Regional Distribution of Properties



Source: Natural Resources Canada. Based on MIN-MET CANADA database.



Mineral Deposits Undergoing Active Appraisal in Canada as at January 1 of Each Year



Source: Minerals and Metals Sector, Natural Resources Canada. Based on company reports.
Data for 1983 and 1985 were not complied.

CONCLUDING REMARKS

- This concludes the formal part of my presentation. I trust that the information I have given you will be useful in making decisions about investing in Canada.

- I would be happy to assist you in any way, provide further information on any aspects of mining in Canada, or put you in contact with any Canadian company or project developer. Naturally, you are always welcome to contact the High Commission/Embassy for assistance and more information on the Canadian minerals and metals industry.

- Thank you for your kind attention.

APPENDIX A:

KEY CANADIAN MINING-RELATED ADDRESSES

Canadian Association of Geoscience Companies
Suite 643
7305 Woodbine Avenue
Markham (Toronto), Ontario
Canada L3R 3V7
Tel: (905) 513-1444; Fax: (905) 475-8616

Canadian Association of Mining Equipment and Services for Export
Suite 903
505 Consumers Road
Willowdale, Ontario
Canada M2J 4V8
Tel: (416) 498-0382; Fax: (416) 492-8711

Canadian Mines Handbook
Southam Business Communications Inc.
1450 Don Mills Road
Don Mills, Ontario
Canada M3B 2X7
Tel: (416) 445-6641; Fax: (416) 442-2181

The Coal Association of Canada
Suite 502
205 - Ninth Avenue, S.E.
Calgary, Alberta
Canada T2G 0R3
Tel: (403) 262-1544; Fax: (403) 265-7604

The Mining Association of Canada
Suite 1105
350 Sparks Street
Ottawa, Ontario
Canada K1R 7S8
Tel: (613) 233-9391; Fax: (613) 233-8897

Prospectors and Developers Association of Canada
9th Floor
34 King Street
Toronto, Ontario
Canada M5C 2A5
Tel: (416) 362-1969; Fax: (416) 362-0101

APPENDIX B:

CANADIAN DEPOSITS OF SELECTED MAJOR METALS UNDERGOING APPRAISAL AS AT JANUARY 1996

CANADIAN DEPOSITS OF SELECTED MAJOR METALS
UNDERGOING ACTIVE APPRAISAL AS AT JANUARY 1996
(The metal in these deposits is not counted in Canadian reserves.)

- DEPOSITS: Individual deposits have been selected on the basis of public information. Deposits committed for production prior to January 1, 1996, are not included.
- TONNAGES and GRADE: As reported by companies or, where necessary, from the secondary source that appeared to be the most reliable. Data reported in imperial units were converted to metric units and rounded to the corresponding number of significant digits. Tonnages and grade descriptions such as "probable and possible" are those reported by companies.
- COMPANIES: Where two or more companies are identified with a deposit, the first is usually the operator.

Deposits and Companies	Tonnage and Grade Description	Tonnage[1]	Grade[2] Cu	Ni	Pb	Zn	Mo	Ag	Au	Comments
		(tonnes)	(%)	(%)	(%)	(%)	(%)	(g/t)	(g/t)	
NEWFOUNDLAND										
Beaver Brook (antimony) Roycefield Resources Ltd.	–	919 000	–	–	–	–	–	–	. .	Tonnage increased substantially during 1995. Planning, in August 1995, an exploration decline. Deposit grades 4.58% antimony.
Duck Pond (Tally Pond) Noranda Mining and Exploration Inc., Brunswick Mining and Smelting Corporation Limited	Geological	5 500 000	3.4	–	1.2	7.1	–	71.3	–	Extended mineralized horizon during 1994. Planned additional drilling during 1995.
Nugget Pond Novédar Inc., Richmont Mines Inc.	–	416 168	–	–	–	–	–	–	14.3	Richmont acquired 60% interest in May 1995. Planned, in July 1995, to complete a feasibility study before year-end for production in late 1996.
Pine Cove (indoor vat leach) NovaGold Resources Incorporated	Mineable	1 641 000	–	–	–	–	–	–	3.62	Capital cost of a 1500-t/d vat-leaching operation estimated at $13 million. Seeking a joint-venture partner to provide project financing.
Rendell Jackman - Hammerdown and Rumbullion zones Major General Resources Ltd.	–	562 490	–	–	–	–	–	–	13.23	Preliminary evaluation prepared in October 1994 estimated the capital costs of a 400-t/d underground operation at $22 million. Planned, in August 1995, an underground bulk sample.
Voisey's Bay Diamond Fields Resources Inc., Inco Limited, Teck Corporation	Mineable Ovoid zone Potential Eastern Deeps zone	31 700 000 45 000 000	1.68 . .	2.83 . .	– –	– –	– –	– –	– –	Discovered in late 1994. Teck was appointed, in August 1995, primary contractor for the project. Feasibility study of producing at a minimum annual rate of 130 million lb of nickel, 90 million lb of copper and 3 million lb of cobalt from an open pit is expected to be completed in 1996. Production could begin before the end of the decade. The tonnage also grades 0.12% cobalt.
NEW BRUNSWICK										
Canoe Landing Lake Nebex Resources Ltd.	Geological	20 000 000	0.56	–	0.64	1.8	–	32.	1.2	A 13-hole drilling program outlined 2.4 Mt grading 0.69% copper, 2.51% zinc, 0.7% lead, 46 g/t silver and 1.4 g/t gold. Planned, in April 1995, additional drilling.
Half Mile Lake Noranda Mining and Exploration Inc., Conwest Exploration Company Limited, Brunswick Mining and Smelting Corporation Limited	Possible mineable	6 528 000	0.09	–	3.23	9.13	–	39.48	–	Located 20 km from Heath Steele concentrator. In-fill drilling and engineering evaluation of deposit carried out in late 1994.
Heath Steele mine area Brunswick Mining and Smelting Corporation Limited	Geological	19 260 000	0.6	–	2.6	7.2	–	52.	–	Potential feed for Heath Steele operation.

TABLE (cont'd)

Deposits and Companies	Tonnage and Grade Description	Tonnage[1]	Grade[2] Cu	Ni	Pb	Zn	Mo	Ag	Au	Comments
		(tonnes)	(%)	(%)	(%)	(%)	(%)	(g/t)	(g/t)	
NEW BRUNSWICK (cont'd)										
Mount Pleasant mine Adex Mining Corp. (bio-oxidation)	Proven-possible	16 100 000	0.07	–	–	0.41	0.066	–	–	A pre-feasibility study completed, in 1994, by D.M. Fraser Services Inc. estimated the capital cost of re-opening the mine at 2000 t/d at $46 million. Testing a bulk sample as at fourth quarter 1995. The proven-possible tonnage also grades 0.29% tin, 0.07% bismuth, 1.88 g/t indium, and 0.17% tungsten. There is also some gallium. The company reports that Mount Pleasant contains the world's largest indium reserves, North America's largest tin reserves and one of the largest reserves of bismuth. The deposit also contains an additional 38 Mt in the drill-indicated category.
Taylor Brook Stratabound Minerals Corp.	–	295 000	–	–	. .	2.3k	–	14.	–	Discovered another zone in summer of 1995. Reported, in December 1995, that strike and down-dip extent of deposit had been increased.
QUEBEC										
Akasaba mine Cambiex Exploration Inc.	Resource	254 750	–	–	–	–	–	. .	6.3	Produced 262 500 t grading 5.1 g/t during 1980s. Planned, in May 1995, further drilling.
Aldermac AJ Perron Gold Corp.	Diluted inventory	1 373 000	1.8	–	–	4.6	–	35.0	0.55	Potential feed for Kerr Addison mill in Ontario.
Arntfield AJ Perron Gold Corp., Noranda Mining and Exploration Inc., Cangold Resources Inc.	Diluted inventory	633 000	–	–	–	–	–	–	4.83	Down-dip extension of Francoeur mine.
Aubelle J.A.G. Mines Ltd.	Measured-indicated-possible	353 700	–	–	–	–	–	. .	4.2	Planned, in August 1995, additional drilling.
AurBel (Lac Herbin) Aur Resources Inc.	Preliminary inventory	363 000	–	–	–	–	–	. .	6.9	Considering, in August 1995, an underground exploration program in 1996.
Benoist (Lac Pusticamica) Murgor Resources Inc., Freewest Resources Inc.	Drill-indicated probable	482 104	0.27	–	–	–	–	12.1	5.47	Discovered in 1992. Planned, in spring 1995, further drilling during 1996.
Bourlamaque-Nord (Wrightbar Mine) Corporation Lithos	–	276 380	–	–	–	–	–	. .	7.78	Bulk sampling during 1995. Planned, in August 1995, to prepare a new resource calculation in the fall of 1995.
Cabre BHP Minerals Canada Ltd., Southern Africa Minerals Corp.	Resource	1 100 000	1.31	–	–	5.54	–	10.	0.3	Reported, in November 1995, the discovery of two new zones.
Casa Berardi - North zone TVX Gold Inc., Golden Knight Resources Inc.	Geological resource	360 000	–	–	–	–	–	–	6.2	New discovery during 1992 on north side of Casa Berardi fault.
Casa Berardi - Principal TVX Gold Inc., Golden Knight Resources Inc.	Mineable	1 971 277	–	–	–	–	–	–	6.2	Located between Casa Berardi Est and Casa Berardi Ouest mines. Started a $22 million underground development program in mid-1994 that includes an exploration and haulage tunnel linking both mines to the Principal deposit.

TABLE (cont'd)

Deposits and Companies	Tonnage and Grade Description	Tonnage[1]	Grade[2] Cu	Ni	Pb	Zn	Mo	Ag	Au	Comments
		(tonnes)	(%)	(%)	(%)	(%)	(%)	(g/t)	(g/t)	
QUEBEC (cont'd)										
Cedar Bay mine MSV Resources Inc.	Mineable	267 000	0.97	–	–	–	–	. .	5.5	In production 1957-90. Completed, as at May 1995, preliminary technical studies for re-opening the mine and integrating it into the Copper Rand operation. Planned to follow up with an economic analysis.
Chevrier (Obatogamau) GéoNova Explorations inc., Inmet Mining Corporation	Geological resource	1 060 000	–	–	–	–	–	. .	6.36	Planned, in October 1995, definition drilling during 1996.
Coleraine - Hall Coleraine Mining Resources Inc.	–	1 032 574	–	–	–	–	–	–	–	The company has an agreement with EGE Metals Industry of Turkey for the possible supply of chromite concentrates for a period of 10 years. The Hall deposit grades 4.5% Cr_2O_3 and 0.17 g/t platinum.
Concession no. 391 Patrick Sheridan, Corporation Lithos	Geological	904 607	–	–	–	–	0.162	–	–	Tonnage and grade determined based on drilling in 1969. Planned, at May 1995, additional drilling. The deposit also grades 0.053% bismuth.
Copper Mountain mine (Oxide) Noranda Mining and Exploration Inc.	Probable mineable	19 496 000	0.44	–	–	– .	–	. .	–	Planned, in August 1995, to construct a $4 million SX-EW pilot plant to recover copper from oxide ore and assess the feasibility of a commercial-scale plant. A decision on the commercial-scale plant is expected in 1997.
Corner Bay - Main zone MSV Resources Inc., Cache Explorations Inc.	Probable and possible	960 601	5.28	–	–	–	–	–	–	Pre-feasibility study estimated the cost of developing an 800-t/d underground mine at $15 million. Planned, in May 1995, to begin building infrastructure for a 200 000-t/y underground mine.
Desjardins GéoNova Explorations inc.	Geological	691 000	–	–	–	–	–	. .	4.53	Planned, in early 1995, additional drilling during 1995.
Dalquier (Amos) Aur Resources Inc., Jonpol Explorations Limited	–	3 103 151	1.26	–	–	0.843	–	1.	0.0039	Discovered a fourth mineralized zone during 1994. Drilling as at August 1995.
Douay - West zone Société d'Exploration Minière Vior Inc.	–	415 000	–	–	–	–	–	–	6.27	Reported, in mid-1995, a new resource calculation.
Duquesne West - Shaft and Fox zones Globex Mining Enterprises Inc., Santa Fe Canadien Mining Ltd.	Inferred resource	642 442	–	–	–	–	–	. .	12.1	Resource estimate announced in September 1995.
East Amphi Placer Dome Canada Limited, Breakwater Resources Ltd.	Drill-indicated inventory	866 188	–	–	–	–	–	. .	10.38	Drilling as at mid-1995. Planned mapping and trenching during summer of 1995.
Goldex - Extension zone Goldex Mines Limited	Inventory	23 000 000	–	–	–	–	–	. .	2.5	Deepened shaft during 1994. Processing, as at November 1995, a 30 000-t bulk sample.
Hebecourt mine (New Insco) Espalau Mining Corporation, AJ Perron Gold Corp.	Diluted inventory	1 108 000	2.80	–	–	–	–	–	–	Companies planned, in September 1995, to bring the mine back into production.
Magnola Noranda Mineral and Exploration Inc.	–	. .	–	–	–	–	–	–	–	Company and three partners announced, in the first quarter of 1995, the construction of a $33 million pilot plant to test a process to recover magnesium from asbestos tailings. Commercial production could start in 1997.

TABLE (cont'd)

Deposits and Companies	Tonnage and Grade Description	Tonnage[1]	Grade[2] Cu	Ni	Pb	Zn	Mo	Ag	Au	Comments
		(tonnes)	(%)	(%)	(%)	(%)	(%)	(g/t)	(g/t)	
QUEBEC (cont'd)										
McWatters mine BLM Service Group, Ecudor Mining Co. Inc., McWatters Mining Inc.	Probable and possible	1 152 000	–	–	–	–	–	..	6.2	In production 1933-44. Discovered new veins in fall of 1995. Planned, as at December 1995, a 26 000-t bulk sample.
Natashquan (mineral sands) Tiomin Resources Inc., Shairco (Saudi Arabia)	Drill indicated	2 100 000 000	–	–	–	–	–	–	–	The deposit grades 6% heavy minerals (**ilmenite, magnetite, zircon** and **garnet**). Pre-feasibility study prepared in June 1994 by Met-Chem Engineers estimated the capital cost of a dredge mine and mineral processing facility at US$260 million. Feasibility study under way, in August 1995, to determine capital and operating costs to ±10%. The deposit could be in production by 1998.
Norebec-Manitou (tailings) ITEC-Mineral Inc.	–	10 000 000e	–	–	–	–	–	..	5.e	Completed, during 1994, testing of pilot plant. Planned, in early 1995, to increase production to 5000 t/d.
O'Brien mine (bio-leaching) Radisson Mining Resources Inc., Breakwater Resources Ltd.	–	1 030 000	–	–	–	–	–	..	6.5	Announced, in September 1995, the preliminary results of bio-leaching as a pre-treatment for the flotation of sulphide concentrates. Planned to conduct batch and continuous process tests by end of 1995.
Philibert Cambiex Exploration Inc.	Geological	1 393 000	–	–	–	–	–	–	5.1	Planned, in May 1995, further exploration during 1995.
Sirmac-Dyke no. 5 Corporation Lithos	–	289 000	–	–	–	–	–	–	–	Dyke no. 5 grades 2.04% Li_2O. Two new dykes were discovered during 1994.
Vezza Agnico-Eagle Mines Limited	–	2 520 000	–	–	–	–	–	–	5.1	Processed an 11 000-t bulk sample during summer of 1995. Deepening shaft as at August 1995. Potential feed for the Eagle mill in Joutel starting in late 1996.
ONTARIO										
Amalgamated Kirkland Cyprus Amax Minerals Company, Queenston Mining Inc.	Geological	1 700 000	–	–	–	–	–	..	5.5	Resource estimate reported in January 1995. Planned, as at November 1995, additional drilling during 1996.
Aquarius mine Echo Bay Mines Ltd., ASARCO Incorporated	Proven-probable	162 000	–	–	–	–	–	..	6.2	Announced, in February 1995, the discovery of an additional resource which may be mineable by open pit.
Armistice Armistice Resources Ltd.	–	324 054	–	–	–	–	–	..	6.11	Results of bulk sample test reported in August 1995. Drilling as at November 1995.
Duport (Shoal Lake) Comwest Exploration Company Limited, Consolidated Professor Mines Limited	Geological	1 800 000	–	–	–	–	–	–	12.	Capital cost of 450-t/d operation estimated at $50 million. Planned, in March 1995, to update the project feasibility study.
Fenn-Gib Pangea Goldfields Inc.	Drill-indicated probable	40 600 000	–	–	–	–	–	–	1.33	Resource estimate increased in September 1995. Planned, as at November 1995, to complete a feasibility study in the summer of 1996.
Garrison Twp. Hillsborough Resources Limited, Jonpol Explorations Limited, T & H Resources Ltd.	Drill indicated	952 700	–	–	–	–	–	..	6.2	Permitting under way, in May 1995, to develop 180 000 t grading 8.6 g/t gold.

TABLE (cont'd)

Deposits and Companies	Tonnage and Grade Description	Tonnage[1]	Grade[2] Cu	Ni	Pb	Zn	Mo	Ag	Au	Comments
		(tonnes)	(%)	(%)	(%)	(%)	(%)	(g/t)	(g/t)	
ONTARIO (cont'd)										
Hemlo interlake Franco-Nevada Mining Corporation Limited	Geological	8 600 000	–	–	–	–	–	. .	6.34	Down-dip extension of Hemlo orebody.
Hislop Stroud Resources Ltd.	–	1 014 465	–	–	–	–	–	–	6.31	Seeking project financing as at first quarter 1995.
Hoyle Township Black Hawk Mining Inc.	Drill inferred	697 484	–	–	–	–	–	. .	11.28	Resource estimate announced in November 1995.
Karl-Zeemel Placer Dome Canada Limited, TVX Gold Inc.	–	327 000	–	–	–	–	–	. .	4.6	Proximal to Musselwhite deposit. Planned, as at December 1995, to drill during 1996.
Madsen mine Madsen Gold Corp.	Proven-probable mineable	823 600	–	–	–	–	–	–	9.91	In production 1938-76. Preliminary capital cost of a 40 000-oz/y operation estimated at $10 million. Transported the Dona Lake concentrator to the Madsen mine site. Subsurface drilling as at October 1995.
Matachewan mine Royal Oak Mines Inc.	Inventory	11 620 000	–	–	–	–	–	–	3.4	Planned to conduct advanced exploration and engineering design during 1995.
Montcalm Outokumpu Mines Ltd.	Indicated and inferred resources	7 400 000	0.7	1.6	–	–	–	–	–	Resource increased during 1994. Planned, as at November 1995, to complete a decline by mid-1997.
Moss Lake Moss Lake Gold Mines Ltd.		60 000 000	–	–	–	–	–	–	1.1	Planned, as at November 1995, a winter drilling program to assess the potential of mining higher-grade portions of the deposits.
Musselwhite[3] - T. Antiform Placer Dome Canada Limited, TVX Gold Inc.	Measured and drill-indicated resource	11 025 000	–	–	–	–	–	–	9.	Building a 45-km all-weather access road to the property. Results of feasibility study expected by end of November 1995. A production decision could be made by year-end 1995.
Nickel Rim Falconbridge Limited	Undiluted inventory	520 000	25.53	4.13	–	–	–	–	–	Discovery reported in 1993. Deposit also grades 9.8 g/t platinum and 8.4 g/t palladium.
Pamour mine - west of concentrator Royal Oak Mines Inc.	Geologic potential	1 500 000	–	–	–	–	–	. .	0.06	Discovered during 1993.
Red Lake - East Bay Goldcorp Inc.	Possible	540 000	–	–	–	–	–	. .	8.78	Proximal to Red Lake mine. Extended ore zone during 1993.
Sabin Noranda Mining and Exploration Inc., Major General Resources Ltd.	Inventory	196 000	0.8	–	–	3.2	–	–	–	Drilled in early 1995. Planned, as at May 1995, further drilling.
Sangold Marshall Minerals Corp.	Preliminary	100 000	–	–	–	–	–	. .	5.1	Drilled during 1994. Planned, as at early 1995, further work on property.
Springpole Santa Fe Canadian Mining Ltd., Gold Canyon Resources Inc.	–	24 000 000	–	–	–	–	–	–	1.2	Announced, in October 1995, the discovery of two new gold zones. Planned, as at November 1995, additional work in January 1996.
Thorne - Kapika zone Band-Ore Resources Ltd.	–	263 000	–	–	–	–	–	–	2.5	Discovered two new zones during 1995.
Upper Beaver mine Royal Oak Mines Inc., Queenston Mining Inc.	Geological	180 000	1.2	–	–	–	–	–	7.9	Carried out a $265 000 exploration program in spring of 1995. Waiting, in August 1995, on assay results.

TABLE (cont'd)

Deposits and Companies	Tonnage and Grade Description	Tonnage[1]	Grade[2] Cu	Ni	Pb	Zn	Mo	Ag	Au	Comments
		(tonnes)	(%)	(%)	(%)	(%)	(%)	(g/t)	(g/t)	
ONTARIO (cont'd)										
Victor Inco Limited	Geological	36 000 000	6.•	2.•	–	–	–	. .	1.•	Planned in November 1994, a $72 million program of underground exploration over the next three years. Also contains **platinum** and **palladium**.
Victoria Creek Sudbury Contact Mines Limited	Inferred resource	4 280 000	–	–	–	–	–	. .	4.53	Applying, in January 1995, for permits to sink a shaft by late 1995 or early 1996. Drilling as at August 1995.
MANITOBA										
Fer - Fer zone Canmine Resources Corporation	Geological	1 700 000	0.61	–	0.34	3.21	–	15.4	1.	Planned, as at April 1995, additional drilling.
Fer - Island Lake zone Canmine Resources Corporation	Geological	300 000	1.	–	. .	5.02	–	17.8	0.2	–
Keystone - MacLellan mine (Niska) Granduc Mining Corporation, Black Hawk Mining Inc.	Mineable	413 000	–	–	–	–	–	–	6.10	In production 1986-89. Pre-feasibility study completed summer 1995. Announced, in October 1995, that production decision was being deferred to focus on the development of Farley Lake.
Minago Black Hawk Mining Inc.	Geological	10 502 000	. .	1.19	–	–	–	. .	. .	Feasibility study, prepared in 1991 by Fluor Daniel Wright Engineers Limited, estimated the capital cost of a 3200-t/d operation at $120 million. Also contains **cobalt**. Looking for partner.
Pipe Deep Inco Limited	Resource	4 000 000	. .	2.32	–	–	–	. .	. .	Discovered 1994. Also contains **cobalt** and **platinum group metals**. Exploration expected to continue into 1995.
Pipestone Lake Gossan Resources Ltd., Cross Lake Mineral Exploration Inc.	–	449 000 000	–	–	–	–	–	–	–	Discovery announced 1993. Deposit grades 4.42% TiO_2. The main zone contains 23 Mt grading 8.72% TiO_2, 42.75% Fe_2O_3 and 0.58% V_2O_5 to 300 m. US$200 million required to develop. Detailed geological mapping under way during summer 1995.
Puffy Lake mine Pioneer Metals Corporation	Recoverable proven and probable	855 100	–	–	–	–	–	–	6.7	Feasibility study prepared in summer of 1993 estimated the capital costs of a 1000-t/d operation at $8.4 million. In-fill drilling carried out in February 1995. Planned, in April 1995, a bulk sample test.
Tartan Lake mine Granges Inc.	–	375 000	–	–	–	–	–	. .	6.27	Discovered West zone in early 1995.
SASKATCHEWAN										
Goldfields - Athona and Box Greater Lenora Resources Corp.	Mineable	16 600 000	–	–	–	–	–	–	1.7	Feasibility study prepared by H.A Simons Ltd. estimated the capital cost of a 6000-t/d operation at $66.1 million. Construction could start in early 1996 for production in the summer of 1997.
Hanson Lake (McIvenna Bay) Cameco Corporation, Billiton Metals Canada Inc.	Geological	13 080 000	1.26	–	–	4.95	–	24.3	0.52	Pre-feasibility study prepared in 1989 estimated the capital cost of a 2700-t/d operation at $90 million. Cameco owns 67.1% of the project.
Key Lake mine (tailings) Cameco Corporation	–	3 000 000	–	. .	–	–	–	–	–	Key Lake tailings also contain **cobalt**. The capital cost of an operation to extract 580 000 lb of cobalt and 7 million lb of nickel per year for 11 years is estimated at $45 million. Production could begin in 1997.

TABLE (cont'd)

Deposits and Companies	Tonnage and Grade Description	Tonnage[1]	Grade[2] Cu	Ni	Pb	Zn	Mo	Ag	Au	Comments
		(tonnes)	(%)	(%)	(%)	(%)	(%)	(g/t)	(g/t)	
SASKATCHEWAN (cont'd)										
Komis[b] Waddy Lake Resources Inc., Golden Rule Resources Ltd.	Proven and probable mineable	687 320	–	–	–	–	–	–	10.	Submitted environmental impact statement in August 1995. Results of a feasibility study announced in August 1995 estimated the capital cost of a 400 t/d underground operation using the Jolu concentrator at $9.8 million. Production could begin in early 1996.
Weedy Lake - B zone Tyler Resources Inc., Golden Rule Resources Ltd., Cameco Corporation	Inferred geological	314 000	–	–	–	–	–	–	4.8	Proximal to Komis deposit.
Weedy Lake - Golden Heart Tyler Resources Inc., Golden Rule Resources Ltd., Cameco Corporation	Geological	687 010	–	–	–	–	–	–	10.	Proximal to Komis deposit. Drilling as at December 1995.
BRITISH COLUMBIA										
AKIE Inmet Mining Corporation, Ecstall Mining Corporation	High-grade core	12 000 000	–	–	–	10.k	–	–	–	Drilling suspended in December 1995 due to inclement weather.
Blackdome mine Aurizon Mines Ltd., Claimstaker Resources Ltd.	Possible	72 800	–	–	–	–	–	. .	14	Rehabilating mine as at May 1995. Underground program under way as at November 1995.
Brett mine Huntington Resources Inc.	–	30 000e	–	–	–	–	–	–	25.5e	Producing under a bulk-sampling permit.
Bronson Slope International Skyline Gold Corporation	Drill-indicated geological resource	102 000 000	0.15	–	–	–	0.007	4.08	0.72	Discovered in 1993. Reported what may be a new mineralized zone in October 1995. Planned, as at October 1995, additional drilling.
Cirque (Stronsay) Teck Corporation, Cominco Ltd., Korea Zinc Co. Ltd.	Mineable North Cirque South Cirque	25 000 000 12 000 000	– –	– –	2.3 . .	8.5 . .	– –	51. . .	– –	Mine development certificate issued in 1992. Planned to review and update feasibility study during 1995.
Debbie - 900 zone White Hawk Ventures Inc., Westmin Resources Limited	–	24 619	–	–	–	–	–	–	11.62	Underground development completed during 1994. Plan to process at Premier concentrator.
Ecstall - Red Gulch Atna Resources Ltd.	Indicated	7 000 000	0.6	–	–	2.5	–	20.	0.5	Previously explored as a potential source of sulphur. Acquired from Falconbridge during 1993. Planned, in June 1995, further exploration in August or September 1995.
Engineer mine Winslow Gold Corp.	Indicated	50 000	–	–	–	–	–	–	. .	Planned as at December 1995, additional surface and underground exploration.
Evening Star mine Pacific Vangold Mines Ltd.	Drill indicated	90 922	–	–	–	–	–	–	11.	Minor production between 1890 and 1939. Mining at 100 t/d as at September 1995.
Expo - Hushamu zone Jordex Resources Inc.	Proven and probable	173 000 000	0.272	–	–	–	0.009	–	0.3	Located 28 km from Island Copper concentrator. Preliminary capital cost estimated at $170 million-$195 million. Looking for partner.
Fairview mine - Silver Crown adit Oliver Gold Corporation	Geological	42 260	–	–	–	–	–	44.8	22.62	Company intended, as at April 1995, to develop a small-scale mining operation.

TABLE (cont'd)

Deposits and Companies	Tonnage and Grade Description	Tonnage[1]	Grade[2] Cu	Ni	Pb	Zn	Mo	Ag	Au	Comments
		(tonnes)	(%)	(%)	(%)	(%)	(%)	(g/t)	(g/t)	
BRITISH COLUMBIA (cont'd)										
Getty North Getty North Corp.	Oxide resource	12 000 000	0.5	–	–	–	–	–	–	Reported, in April 1994, leach test recoveries of 67.5% to 92%. Seeking $4 million to advance project to feasibility stage. Proximal to Highland Valley operation.
Giant Copper - AM Breccia Imperial Metals Corporation	Indicated open-pit	20 700 000	0.75	–	–	–	–	12.41	0.411	Reported, in November 1995, the discovery of a new zone. Planning additional drilling in spring of 1996.
Golden Bear mine - Ursa North American Metals Corp.	Drill indicated	209 000	–	–	–	–	–	. .	23.3	Reported, in October 1995, that Strathcona Mineral Services had been retained to assess the feasibility of mining the Ursa zone.
Golden Bear mine - Grizzly North American Metals Corp.	Proven-probable	153 000	–	–	–	–	–	. .	20.5	Resource estimate reported November 1995.
Golden Bear mine - Kodiak A North American Metals Corp.	Geological	543 000	–	–	–	–	–	–	4.4	Strathcona Mineral Services assessing feasibility of mining deposit.
Harmony (Cinola) Misty Mountain Gold Limited	–	31 300 000	–	–	–	–	–	–	2.2	Drilling as at November 1995.
Huckleberry - Main and East Zones Princeton Mining Corporation, Mitsubishi Materials Corporation, Dowa Mining Co., Ltd., Furakawa Co. Ltd.	Mineable	90 900 000	0.512	–	–	–	0.014	2.81	0.062	Feasibility study completed in October 1995 by H.A. Simons Ltd. estimated the capital cost of 15 500-t/d open-pit operation at US$100 million. Provincial approval to develop mine received in December 1995. Production could start in late 1997.
JD - Finn zone AGC Americas Gold	Preliminary possible resource	148 000	–	–	–	–	–	–	4.5	Drilled during 1995. Expected, as at September 1995, to upgrade the resource estimate.
Kemess-North Royal Oak Mines Inc.	Geological	157 000 000	0.18	–	–	–	–	–	0.38	Proximal to Kemess-South.
Kemess-South Royal Oak Mines Inc.	Mineable	200 440 000	0.224	–	–	–	–	–	0.629	Pre-feasibility study prepared in 1993 by Kilborn Engineering Pacific Ltd. estimated the capital cost of a 40 000-t/d open-pit operation at $374 million. Planned, in October 1995, to extract and test a bulk sample by January 1996. Contractors for engineering, procurement and construction have been appointed. Production could start in late 1997.
Kerr and Sulphurets Placer Dome Canada Limited	–	174 181 000	0.6e	–	–	–	–	2.e	0.5	Sulphside claims of the Sulphurets deposit acquired in 1991.
Ladner Creek mine (tailings) Athabaska Gold Resources Ltd.	–	800 000	–	–	–	–	–	–	1.7	Metallurgical testing of tailings in progress as at November 1995.
Lorraine Lysander Gold Corporation, Kennecott Canada Inc.	Potential	9 000 000	0.67	–	–	–	–	–	0.2	Waiting on further drilling results as at October 1995.
Mt. Polley Imperial Metals Corporation, Sumitomo Corp.	Mineable (S-19 Pit)	49 000 000	0.363	–	–	–	–	–	0.556	Mine development certificate issued in 1992. Feasibility study completed in February 1995 estimated the capital cost of a 14 000-t/d operation at $102 million. Production could start in 1997.

TABLE (cont'd)

Deposits and Companies	Tonnage and Grade Description	Tonnage[1]	Grade[2] Cu	Ni	Pb	Zn	Mo	Ag	Au	Comments
		(tonnes)	(%)	(%)	(%)	(%)	(%)	(g/t)	(g/t)	
BRITISH COLUMBIA (cont'd)										
Old Nick mine Gold City Mining Corporation, Phoenix Gold Resources Ltd., Sway Resources Inc.	–	100 000 000	–	0.22	–	–	–	–	–	The deposit also contains **cobalt**. Bench-scale agitated leach tests reported in October 1995. Planned, in October 1995, to conduct column leach tests.
Phoenix mine (tailings) Kettle River Resources Ltd.	–	13 122 679	0.106	–	–	–	–	3.3	0.3	Flotation plant operated 1959-78. Testing, as at September 1995, the viability of recovering gold, magnetite, garnet and wollastonite from tailings.
Polaris Taku mine Canarc Resources Corp.	Drill indicated	2 400 000	–	–	–	–	–	–	15.	In production 1937-51. Increased resource estimate in January 1995. Planned, as at November 1995, additional drilling.
Porcher Island mine Westmin Resources Limited, Cathedral Gold Corporation	Accessible reserves	136 000	–	–	–	–	–	–	8.6	In production during 1930s. Study of feasibility of shipping ore by barge to Premier mill completed in early 1995.
Prosperity (Fish Lake) Taseko Mines Limited	Mineable	675 000 000	0.236	–	–	–	–	. .	0.434	Kilborn Engineering Pacific Ltd. prepared, in July 1994, a pre-feasibility study for a 60 000-t/d open-pit operation with an estimated capital cost of US$336 million. Company seeking a buyer for the property.
Rainbow - No. 2 Main zone Teck Corporation, Getchell Resources Inc.	Potential	14 100 000	0.5	–	–	–	. .	. .	. .	Proximal to Teck's Afton mine. Reported, in November 1995, the discovery of a new zone.
Red Chris - Red Chris American Bullion Minerals Ltd., Teck Corporation	Resource	200 000 000	0.5	–	–	–	–	–	0.4	Results of pre-feasibility study, conducted by Fluor Daniel Wright, expected in early 1996.
Red Chris - Yellow Chris American Bullion Minerals Ltd., Teck Corporation	Potential	80 000 000	. .	–	–	–	–	–	. .	Contains Gully and Far West deposits.
Red Mountain - Marc and AV zones Royal Oak Mines Inc.	Indicated and inferred geologic resource	2 500 000	–	–	–	–	–	38.1	12.8	Application for mine development certificate submitted in May 1993. Royal Oak planned, in August 1995, to acquire property from Barrick Gold Corporation. Subject to a feasibility study, production could begin in 1998. Capital cost estimated at $100 million.
Similco mine - Alabama Princeton Mining Corporation	Preliminary geological	21 600 000	0.312	–	–	–	–	–	0.16	Proximal to Similkameen concentrator. Drilling as at spring of 1995 in order to define reserves.
Taurus mine Cyprus Canada Inc., International Taurus Resources Inc., Cusac Gold Mines Ltd.	Geological resource	118 000 000	–	–	–	–	–	–	0.99	In production 1981-88. Metallurgical tests in progress as at October 1995.
Tulsequah Chief mine Redfern Resources Ltd.	Mineable	7 150 000	1.24	–	1.18	6.32	–	99.33	2.41	Last produced during the 1950s. Results released in July 1995 of a feasibility study prepared by Rescan Engineering Ltd. estimated the capital cost of a 900 000-t/y underground operation at $160 million. Studies required to apply for a mine development certificate were in progress as at July 1995. The adjacent Big Bull mine contains a resource of 700 000 t.

TABLE (cont'd)

Deposits and Companies	Tonnage and Grade Description	Tonnage[1]	Grade[2] Cu	Ni	Pb	Zn	Mo	Ag	Au	Comments
		(tonnes)	(%)	(%)	(%)	(%)	(%)	(g/t)	(g/t)	
YUKON TERRITORY										
ABM (Kudz Ze Kayah) Cominco Ltd.	Possible resource	13 000 000	1.	–	1.3	5.5	–	125.	1.2	Discovered in 1994. Possible production decision by end of 1995 for a 2700-t/d operation with capital costs of some $100 million to be in operation by fall of 1997.
Canalask Cachet Entreprises Corp., Expatriate Resources Ltd.	–	398 235	–	1.35	–	–	–	–	–	Drilled in late 1994. Planned, in April 1995, additional geophysical surveys.
Casino (oxide and sulphide) Pacific Sentinel Gold Corp.	Mineable - open pit	178 200 000	0.303	–	–	–	0.028	–	0.376	Metallurgical test results for the hypogene and supergene zones reported in fall of 1995.
Dy (underground) Anvil Range Mining Corporation	Probable	9 390 000	–	–	5.50	6.62	–	80.3	0.82	Production expected in 2001 at a capital cost of $40 million.
Elsa - Bellekeno mine United Keno Hill Mines Limited	Measured, indicated and inferred resources	255 245	–	10.87	7.86	–	–	1196.	0.2	Resource estimate increased during 1995. Drifting as at August 1995.
Elsa - Husky Southwest United Keno Hill Mines Limited	Measured and indicated resources	61 000	–	. .	. .	–	–	1063.	. .	Compilation and digitization of data in progress as at August 1995.
Elsa - Silver King mine United Keno Hill Mines Limited	Measured, indicated and inferred resources	72 134	–	3.27	0.61	–	–	1 165.	0.3	Work in progress, as at August 1995, for the submission of an application to mine.
Grew Creek (oxide) YGC Resources Ltd.	–	200 000	–	–	–	–	–	. .	15.	Start-up costs were estimated in 1994 at $5 million. Drilling as at September 1995.
Ketza River mine Whalon River Minerals Ltd., YGC Resources Ltd.	Proven, probable and possible	191 000	–	–	–	–	–	. .	11.	Discovered Forks oxide zone in summer of 1995. Re-logging core as at September 1995. Planned, as at November 1995, additional drilling in 1996.
La Forma mine (Mount Freegold) Redeil Mining Corp.	–	450 000	–	–	–	–	–	–	11.	Planned, as at May 1995, a 117 000-t bulk test during 1995/96.
Mel International Barytek Resources Ltd., Breakwater Resources Ltd.	Drill indicated	6 778 000	–	–	2.03	7.10	–	–	–	Increased estimate of mineral inventory during 1994 on the basis of deep drilling. The deposit also grades 54.69% **barite**.
Minto Minto Explorations Ltd.	Proven and probable	6 550 000	1.873	–	–	–	–	8.2	0.51	Capital cost of a 1300-t/d operation estimated at $25 million. Permitting in progress as at May 1995.
Mount Nansen B.Y.G. Natural Resource Inc.	Proven, probable and possible	1 009 403	–	–	–	–	–	148.	7.38	Discovered, in the fall of 1995, extensions to two zones. Seeking financing as at November 1995.
Williams Creek Thermal Exploration Company, Western Copper Holdings Limited	Diluted oxide reserve	14 110 000	1.01	–	–	–	–	–	0.51	Feasibility study, prepared in 1994, by Kilborn Engineering Pacific Ltd. estimated the capital cost of a 5800-t/d heap leach SX/EW operation at $62 million. Permitting and financing in progress as at August 1995. Production could start in 1997. Partners agreed, in May 1995, to merge.
NORTHWEST TERRITORIES										
Crestaurum mine Treminco Resources Ltd., Royal Oak Mines Inc.	Drill indicated	290 000	–	–	–	–	–	–	7.5	In production 1949-69. Planned, as at September 1994, to bring into production and process at Ptarmigan concentrator.

TABLE (cont'd)

Deposits and Companies	Tonnage and Grade Description	Tonnage[1]	Grade[2] Cu	Ni	Pb	Zn	Mo	Ag	Au	Comments
		(tonnes)	(%)	(%)	(%)	(%)	(%)	(g/t)	(g/t)	
NORTHWEST TERRITORIES (cont'd)										
Damoti Lake Consolidated Ramrod Gold Corporation, Gitennes Exploration Inc.	Drill-indicated resource	1 700 000[e]	–	–	–	–	–	. .	11.	Ten gold-bearing zones have been discovered. Planned, as at November 1995, additional drilling.
Discovery mine – Ormsby zone GMD Resource Corp.	Proven, probable and possible	2 298 000	–	–	–	–	–	–	21.	In production 1949-69. Increase in resource estimate reported in November 1995.
Heninga Lake Inco Limited, Breakwater Resources Ltd.	–	1 760 000	1.19	–	–	7.7	–	79.5	0.34	Optioned to Inco in early 1995.
Izok Lake (including Inukshuk) Inmet Mining Corporation	Probable mineable open-pit and underground	16 500 000	2.2	–	1.1	11.4	–	60.	0.1[e]	Pre-feasibility study prepared in early 1993 estimated the capital costs of a 3000-t/d operation at $350 million. Discussions with respect to government support for an all-weather road and a port in progress during 1995.
Kim-Cass Royal Oak Mines Inc.	–	3 357 000	–	–	–	–	–	–	2.7	Optioned to Royal Oak in 1994. Proximal to Colomac concentrator.
Meadowbank - Third Portage Cumberland Resources Ltd., Comaplex Resources International Ltd.	Probable and possible resource	973 944	–	–	–	–	–	–	6.5	Resource estimate calculated in 1992. Drilling as at May 1995.
Meadowbank - Goose Island Cumberland Resources Ltd., Comaplex Resources International Ltd.	–	450 970	–	–	–	–	–	–	13.	Assay results reported in May 1995.
Melladine - Discovery Zone Cumberland Resources Ltd., Comaplex Resources International Ltd.	Inventory	670 000	–	–	–	–	–	–	9.6	Planned, as at September 1995, to recalculate resource estimate. Two new zones reported in October 1995.
Melladine - West MEG Cumberland Resources Ltd., Comaplex Resources International Ltd.	Inventory	290 000	–	–	–	–	–	–	9.3	Drilled during 1994.
Nicholas Lake - main showing Athabaska Gold Resources Ltd.	Proved, probable and potential	653 000	–	–	–	–	–	–	16.	Results of 1990 pre-feasibility study estimated the capital cost of a 350-t/d operation at $18 million. Royal Oak Mines Inc. agreed, in September 1995, to purchase Athabaska's interest in the property.
Prairie Creek mine San Andreas Resources Corp., Titan Pacific Resources Ltd.	Geological resource	10 600 000	0.4[e]	–	11.3	13.1	–	188.	–	Resource estimate increased in November 1995. Planned additional drilling in 1996.
Southwin (Cache) Cyprus Canada Inc., Noble Peak Resources Ltd.	Possible	363 000	–	–	–	–	–	–	9.3	Resource estimate doubled during 1994.
Ulu BHP Minerals Canada Ltd.	Resource	1 700 000	–	–	–	–	–	. .	11.	Echo Bay Mines Ltd. planned, as at November 1995, to acquire the Ulu deposit.

Source: André Lemieux, "Canadian Reserves of Selected Major Metals, Recent Production Decisions and Deposits Promising for Future Production," *1995 Canadian Minerals Yearbook*, in preparation, Minerals and Metals Sector, Natural Resources Canada, February 21, 1996, tel. (613) 992-2709.

– Nil or unknown; . . Not available.

[a] Musselwhite was committed to production in mid-February 1996. [b] Construction of the Komis mine began in mid-February 1996. [e] Author's estimate. [k] Combined lead and zinc grade.

[1] One tonne = 1.1023113 short tons. [2] One gram per tonne (g/t) = 0.02916668 troy ounces per short ton.